

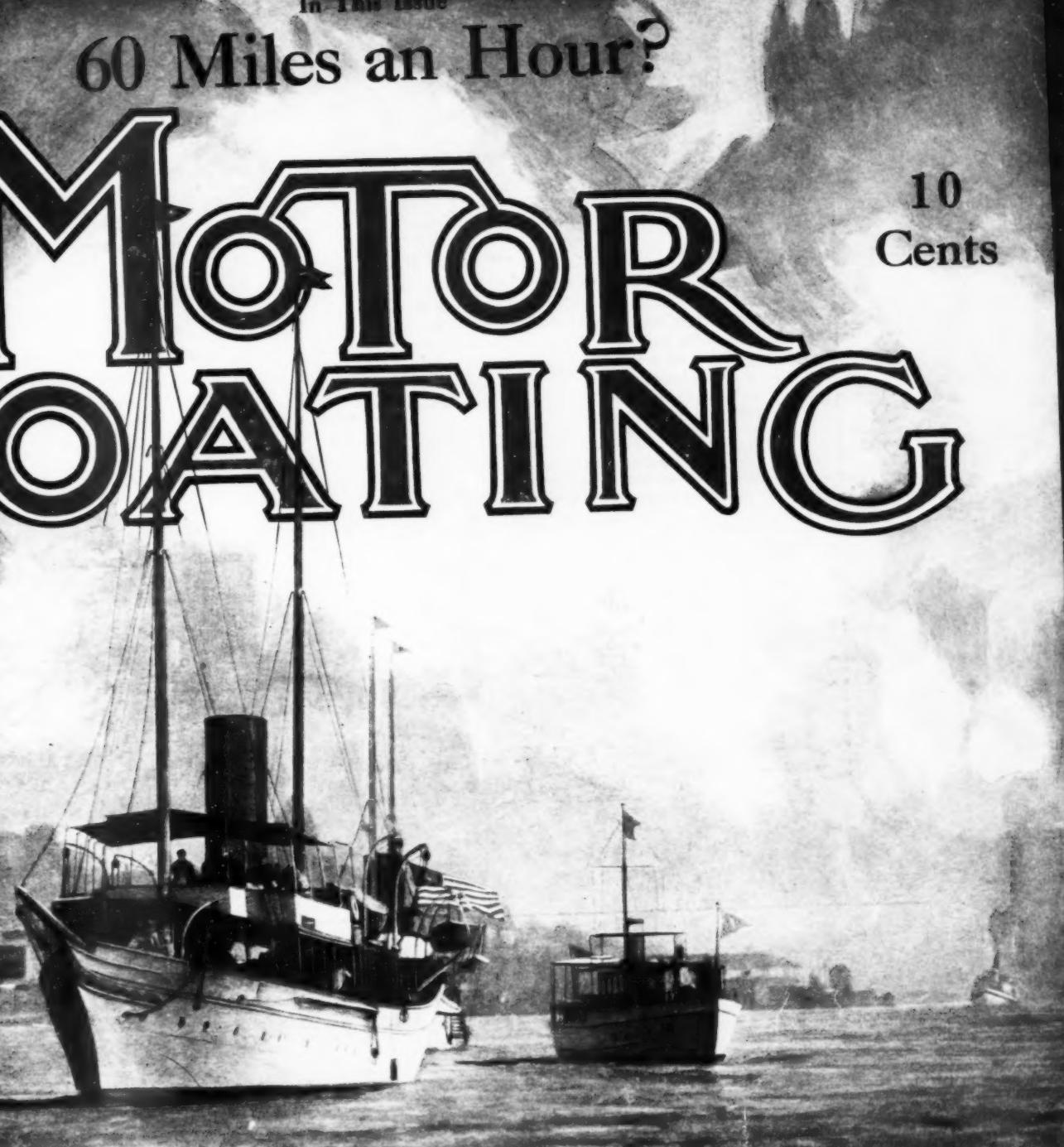
March
1913

In This Issue

60 Miles an Hour?

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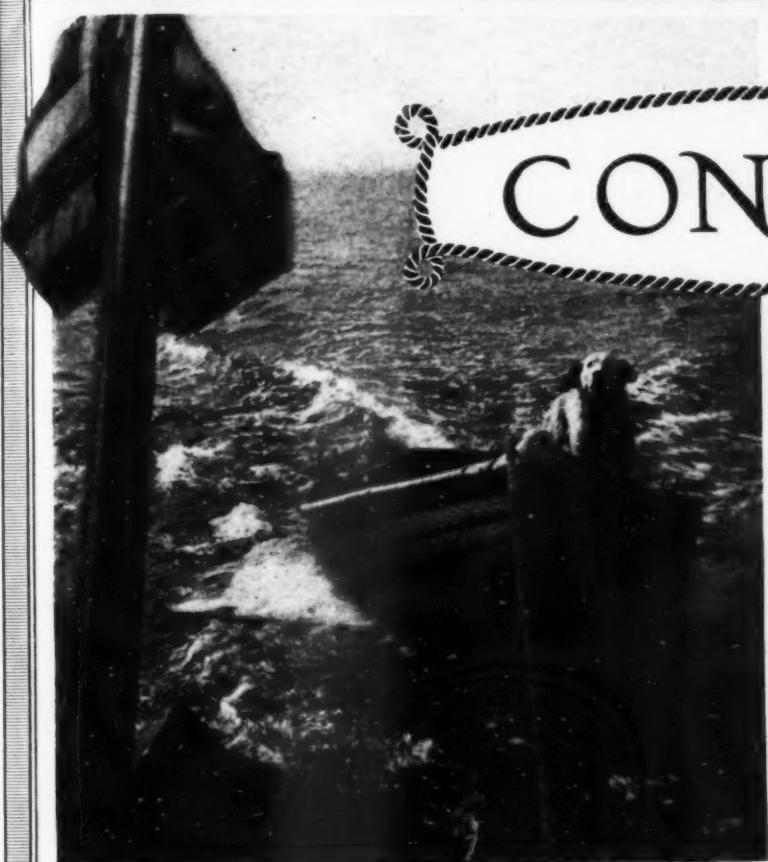
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"Power up to 1000"

Brooklyn, N.Y., Dec. 27, 1910.
Mr. Charles B. Brown,
86 President Ave., Providence, R.I.
Dear Sir:—I purchased a boat with an engine that I didn't like and when I built another boat I inquired about the best kind of an engine and I was assured that the Standard was the best. I found it all right and last year when I built another boat I put in a Standard engine of a larger size and it worked all right. There may be other engines as good, but I think if a man wants to be sure of having a good engine, he had better have a Standard. That is the way I would feel about it, and I don't think you would make any mistake in buying a Standard installed in your boat.
Very truly yours,
WM. HESTER.



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March, 1913

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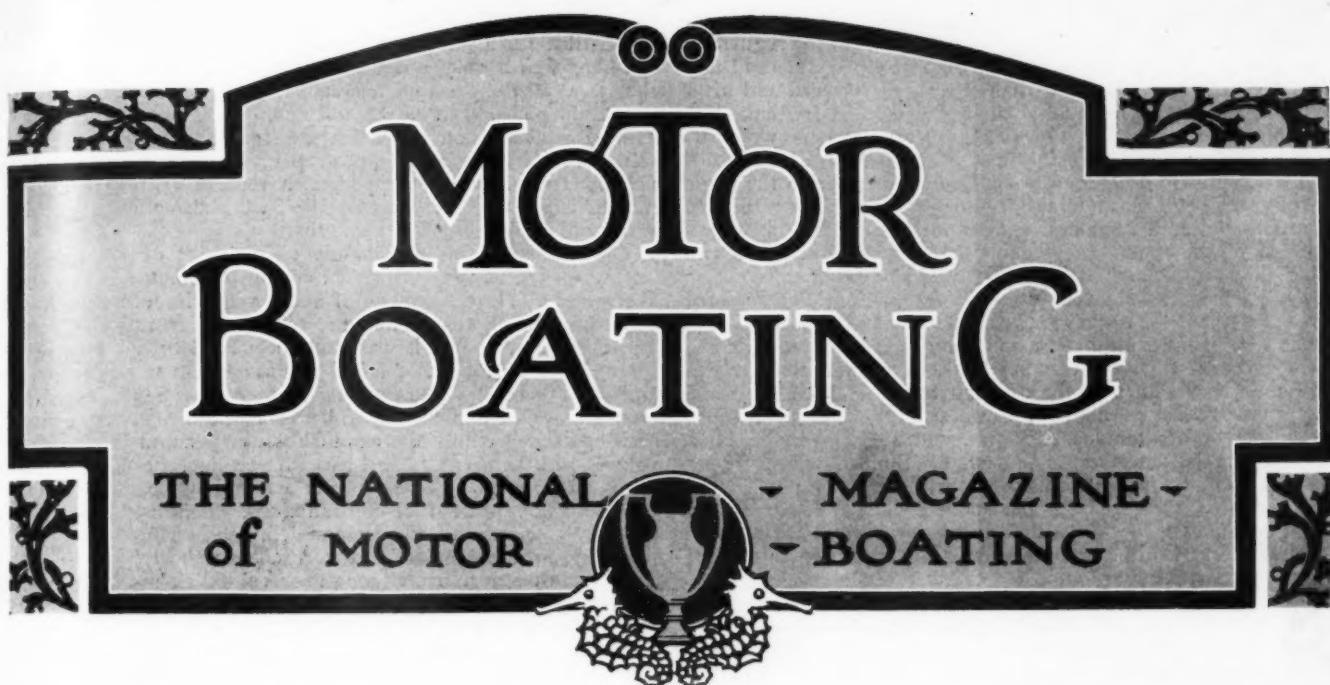
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Ankie Deep warming up her two 150 h.p. Sterlings. This is the way she looked to the driver of Maple Leaf IV for three laps of the final race for the Harmsworth Trophy.



Photograph by Levick



What the Shows Told.

**The Tendencies in the Design of Boats and Motors as Shown by the Big Annual Exhibitions.
At Boston and at New York, the Most Successful in the History of Motor Boating.**

In the February issue of MoToR BoatinG we forecasted in full the two largest motor boat shows that were to take place in this country in 1913, and described in detail a nearly all of the exhibits that were to be shown in Boston from February 1st to 8th and in New York a fortnight later, from February 15th to 22nd. We stated that the outlook indicated that never before in the history of motor boating had such a comprehensive and up-to-date collection of boats, engines and hulls been brought together for the inspection and education of the public as would appear in Mechanics Hall, Boston, and the historic Madison Square Garden in New York City.

That the prophecy was fulfilled to the letter and even our fondest expectations were exceeded will be seen by the photographs of the exhibits at the New York Show shown in supplement with this issue. The results from every standpoint were most encouraging, which speaks volumes for the prospects of the coming season and without doubt we are to see one of the most prosperous years since the advent of the sport.

Particularly striking was the development of new ideas in all branches of the industry, the lack of repetition of past exhibitions and the keen desire of the spectators, even when they were not prospective purchasers, to keep abreast of last year's progress. Something new was seen on every side and without exception these were along lines tending to raise the standard of comfort and safety of the sport.

One especially marked indication of success was to be noticed by the presence of many past purchasers who came in to express their approval of the successful operation of their outfitts and to recommend in the highest terms to prospective buyers the practicability of many of the devices on exhibition. In fact in many instances these persons out-numbered by far the regular salesmen and did much to convince people before the sale was consummated.

Taken collectively at Boston and New York there were more boats, engines and accessories shown than ever before. The attendance was greater than in any year in the past, yet it was more uniformly distributed over the whole day and week with the absence of curious spasmodic crowds, giving much greater buying and selling possibilities. This condition was very much appreciated by both buyer and seller alike.

Prices this year were almost without exception, very reasonable and there was no lack of variety to fit all pocketbooks. In general, cheap trash with a gaudy finish to catch the eye of the uninitiated, was eliminated and the lower priced outfitts were all well and substantially made and plainly finished.

The boats shown at Madison Square Garden were a joy to the enthusiast of every station. Never before were seen such a representative lot of craft, covering every type from the

smallest power dinghy to the most luxurious express. The modest boatman of moderate means, in whose class so many of us belong, was not neglected this year as sometimes has been the case in the past, and fully half the boats were good substantial, plainly finished craft, of the kind that appeal to "the average man."

Of the cruisers, the long, lean 54 ft. Speedway express, Babette, was the most pretentious and was interesting as an example of the possibilities for development and refinement in the day or ferry type of craft. The Elco 45-footer was a beauty and was the biggest real cruiser in the show, although the 36 ft. Elco double cabin cruiser exhibited in the Standard Motor Construction Company's space, was equally attractive. This latter boat represents about the lower limit of practicability for the double cabin idea and for downright comfort combined with excellent seaworthy qualities and speed, it was a winner.

The Toppan Boat Company, besides their representative line of open boats including dories, V-bottoms and a little 14 ft. hydroplane, showed a 23 ft. by 6 ft. raised deck dory cruiser for \$450, and the Cape Cod Power Dory Company had a 22 ft. trunk cabin dory cruiser with a motor under a sliding hatch in the stern which sold for \$500. A more pretentious craft that could really be lived on comfortably was the Dale 30-footer, equipped with a two cylinder 12 h.p. Lathrop which was marked \$1200, or \$1500 with complete equipment, a remarkably good craft at any price, and incidentally a very reasonable one.

The hydroplanes, of course, were the most spectacular part of the whole exhibition and showed the greatest development, which was in general along safe and sane lines. The hydroplane principle was evident in many of the smaller craft and with remarkably low powers many of these claimed speeds far in excess of 20 miles. The seating arrangements in these craft, in practically all cases, was greatly improved and the criticism no longer holds good that the hydroplane is necessarily an uncomfortable soap box of very limited carrying capacity. Seating accommodations were generally provided for four or more persons and the controls were centralized as in the usual runabout practice.

The Smith-Ryan Boat Company showed a 40-footer that in many respects was quite original. She was a striking piece of workmanship in the first place and showed a remarkable improvement in this respect over the earlier and more experimental craft of this firm. She was a lean, single step affair, with the motor space well aft and the cockpit for both helmsman and engineers in the stern. The driver's seat was high above the

deck with a telescope for picking up buoys, mounted on the wheel box. There were devices on the bulkhead for regulating the amount of air supplied to the step at either side and also for controlling a supply of oil fed to both forward and after planes, an original method of cutting down skin friction. Her engines have not yet been installed, but she gave every appearance of power and speed. The sections were V'd forward with a slight fin projecting down an inch or so from the bilge, even forward at the upward bend, and her after sections seemed absolutely rectangular. Queen Reliance, a Smith-Ryan 20-footer, was mounted alongside the big one. She was also a fine example of boat building and was somewhat different in design from the Baby Reliances, having a sharp bilge forward of the step but the usual rounded bilge to the after plane. This boat will be sold for \$100 a mile and it is expected that she will do better than 35 miles per hour. The famous Baby Reliance II was shown at the Sterling booth, and a new model somewhat changed above the waterline but otherwise a duplicate of the famous 20-footer, and also powered with a 150 h.p. racing Sterling, completed the Smith-Ryan boats.

The new 20-foot Elcoplane looked mighty capable even alongside of the stock 20-foot model. The new one was broader than the stock model and was powered with a 150 h.p. racing Sterling. She had the characteristic fluted planes used on all her sisters.

The Seabury 30-footer powered with a 200 h.p. Speedway, was rather an innovation for the Gas Engine & Power Company. It was built for Carl G. Fisher, of Indianapolis, and was a bluff bowed, husky looking affair with the cockpit aft of the engine in the stern. The sections were very full forward, running quickly into an absolutely flat monoplane underbody with small runner-like fins extending down an inch or so from the bilges. In finish she was up to the usual Seabury standard.

The famous Peter Pan V, James Simpson's 20-footer, was shown by the Gasoline Engine Equipment Company, and there were many more hydroplanes, smaller and less powerful but even more vitally interesting to motor boatmen in general. Among these were the Mullins 16 ft. steel monoplane, the two 13-footers of the Bumble Bee type, built by the Bath Marine Construction Company, the Eldredge Whitaker 20-footer and the Tappan 14-footer.

The Viper Sea Sled deserves special mention as being probably the most revolutionary hydroplane at the show. She was a 20-footer with parallel sides and her underbody was of an inverted V-shaped section, flattening out somewhat toward the stern. Her 40 h.p. Sterling drove twin shafts revolving in opposite directions and passing through stuffing boxes on the transom. The propellers were of Mr. Hickman's famous surface type and his side plate rudders were also used, cutting down the draft materially and eliminating the resistance of shaft, strut, etc. The claims for the speed and seaworthiness of this unique little boat are remarkable.

Another feature of the show which of course was in a class by itself, was the Curtiss flying boat, a Curtiss aeroplane mounted on a hydroplane hull which may be used either as a hydroplane or an aeroplane, changing from one to another at the will of the operator and provided with small wheels at the sides for starting or stopping the machine on land. The machine is a stock model of marked refinement and totally lacking in all appearance of the experimental stage so much in evidence in the hydro-aeroplanes seen as Monaco, for instance.

The runabout type of craft, as heretofore, were the backbone of the exhibition with a goodly sprinkling of skiffs and dories. These ranged all the way from the beautiful 33-footer shown by Geo. Lawley & Son, and the famous Elco and Speed-

way runabouts down to the little rift climber with its tunnel stern and the Seabright dory shown by Henry E. Keller. There was a Hand V-bottom of the Piute III type like the famous Old Glory II, well known to MoToR BoatinG readers, and another V-bottom shown by the Bayonne Launch Company. There seemed to be a marked tendency toward the V-bottom and similar monoplane types of underbody in the runabout field. There were many good all round craft of the accepted runabout type that showed remarkable refinement in the matter of comfort, centralization of controls, unit power plants, etc., and the Milton 22-footer guaranteed for a speed of 13 miles per hour

and selling for \$750 was a good example of what may be had in this line for a remarkably reasonable price.

There was a very striking tendency toward unit plants—that is, everything complete, ready to run. Concentration of important parts, such as the controls, oilers, switches, etc., to some central location was a feature irrespective of whether it was a complete boat and power plant or merely the engine alone. Those plants equipped with reverse gears had them mounted on the same engine bed as were also the magnetos, dynamos, compressors, pumps, etc.

The influence that the rapidly rising price of gasoline is having on the design of internal combustion motors was seen everywhere. Hardly a make of motor was without its method of running on kerosene and the other heavier fuels. These varied greatly, in fact it was extremely hard to find any two resembling each other. Several manufacturers were not content with kerosene attachments and produced an entirely separate design and model of kerosene engine. None could be found that would claim as much power per unit of cylinder volume with kerosene as fuel as with gasoline, the usual claim being from 10 to 15% less power with kerosene. As to the relative amounts of fuel consumptions, manufacturers were also loath to commit themselves definitely. However, none would claim a less amount of kerosene per horsepower hour consumed than gasoline, although several did claim it would be practically the same. Very few of the engine builders advised attempting to run an engine on kerosene which had been designed primarily to run on gasoline, as some internal change appears to be necessary. Many of the combination types had an entirely different shaped cylinder head than those designed for gasoline alone, which would seem to indicate the necessity for a different combustion space and a higher compression pressure. Generally provision was made for the introduction of a small amount of water into the kerosene engine cylinder to prevent pre-ignition, knocking and carbon. The water was generally fed from a large size sight feed cup very similar to an oil cup. While the amount of water recommended varied considerably, yet a quart was considered to be the maximum amount necessary for a day's run, the exact amount to be more a matter of experience than anything else.

Self starters on marine motors were shown for the first time. Four makers anticipated the demand that would probably be excited by the almost universal adaptation of such method of starting on the modern motor car and had their marine models so equipped. Two makes were equipped with compressed air starters and the other two with electric starters. The latter appeared the more popular with the spectators, perhaps on account of the working models on exhibition which upon throwing one switch, started the motor off at a speed of about 100 r.p.m. and kept this up until the switch was pulled. One system was arranged for 12 volts and supplied with a 180 ampere hour storage battery with an arrangement for 6 volt lighting system. The starting motor and charging generator were separate units and geared permanently to the crank shaft and cam shaft respectively. The other electric starter was a 6 volt system with storage battery, separate motor and generator. This instead of being geared to the crank shaft was geared to the rim of the flywheel which had gear teeth cut on it.

All of the well known whistles pressure arrangements were present again this year in goodly numbers, but the compressor, integral with the engine, appears to be gaining headway.

The size of the engine units did not differ materially from past performances, although the presence of two cycle motors in small sizes, down to 1½ or 1 horsepower, was more marked. The use of these small motors for dinghy and yacht tender use has become very general lately since the perfection of the small two cycle motor.

Large units seem to be invariably leaning toward the four cycle practice, and one model of Buffalo rated at 150 h.p. was the subject of much comment and praise. Four cycle motors, however, were not entirely confined to the large units, for the four cylinder "Sterling Kid" rated at 10 h.p. at 1000 r.p.m. with a bore of 2½ inches, a stroke of 4½ inches and weighing 215 pounds, was a remarkable example of excellent design, workmanship and finish. As a

(Continued on page 84)



60 Miles
an Hour?

Shall We Get It This Year?

BABY RELIANCE

1912

WILL the sixty-mile mark be reached this year? As the time has come around again for speed prophecies for the coming season, we have asked this question to a number of the most prominent authorities, and their answers are given below. Judging solely from the forecast of the speed curve* as plotted on this page, we are due for more than sixty miles an hour in 1913; but curves, like the proverbial worm, will turn (and we might add that it is a long worm, or rather lane, that has no turning). Continuing the curve on the same rise that it has had for the past two years, it intersects the 1913 vertical considerably above the 60-mile mark, but whether it will continue at this angle or take a more gradual slope, is the question.

During the development of the displacement hull and the corresponding refinement of the marine engine, the rise of the speed curve was rapid until the year 1908, when the limit along this line had nearly been reached. During 1909 and 1910 the speed advance was very gradual until the advent of the hydroplane in 1911 made further progress possible. Has the time come again for the bending of the curve, or will the development of hull and engine hold the pace? The following are the opinions of the foremost authorities:

From experiments made and experience gained since last summer I believe one mile will be covered in sixty seconds by a racing motor boat in Nineteen Thirteen.

J. Stuart Blackton.

(Commodore of Atlantic Yacht Club and owner of the Baby Reliances).

Think fifty miles may be reached in a race and about fifty-three to fifty-five in trials. Do not expect to see this unless weight of boat and outfit is less than twelve pounds to horsepower.

James A. Pugh.

(Commodore of Columbia Yacht Club, Chicago, and owner of Disturber III).

Any motor boat than can do fifty-five miles will have everything its own way.

C. A. Criqui.

(President of Sterling Engine Company).

If a man were to draw for the lucky number in a series running from 43 to 65, his chances of guessing right would

tained, but my studies of the different problems have convinced me that it is possible to develop the racing hydroplane beyond speeds of seventy-five miles per hour.

W. H. Fauber.
(Inventor of the Fauber Hydroplane).

I think it very improbable that any boat that would show consistency under average water conditions will make sixty mile speed in Nineteen Thirteen. My belief is no boat will show speed of fifty-five with consistency and only fairly rough water. I also believe the Harmsworth will be won at a speed under fifty-two.

James Simpson.
(Owner of Peter Pan V).

Think sixty miles possible but not probable in Nineteen Thirteen; in my opinion speed of fifty-five miles will not fall far below this year's official championship record for one mile dash.

Joseph Van Blerck.
(President of Van Blerck Engine Company).

I think sixty miles per hour will be obtained this coming season. The Weckler Boat Company is now building a Weckler-Fauber Hydroplane which is guaranteed to do fifty-five miles per hour. Our twenty-six foot Weckler-Fauber Hydroplane guaranteed to do thirty-five miles per hour, does over forty miles; the same careful allowance has been made in estimating the fifty-five mile boat and we look for a speed of sixty miles per hour from this craft.

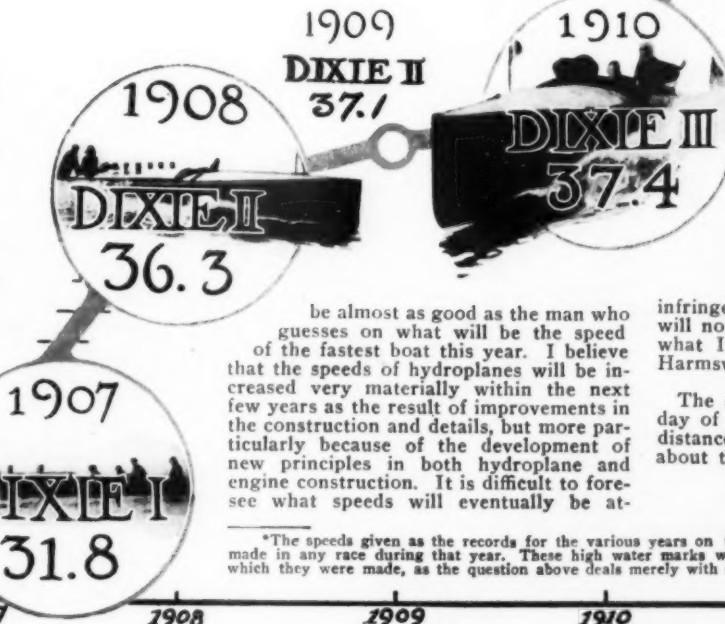
Adam F. Weckler.
(Builder of Disturber III).

No boat will make in Nineteen Thirteen above fifty miles per hour unless someone infringes upon my latest patent. Sixty miles per hour will not likely be reached, but fifty-five miles per hour is what I have under construction now for winning back Harmsworth Trophy.

Adolph Apel.
(Designer and Builder of Tech, Jr.).

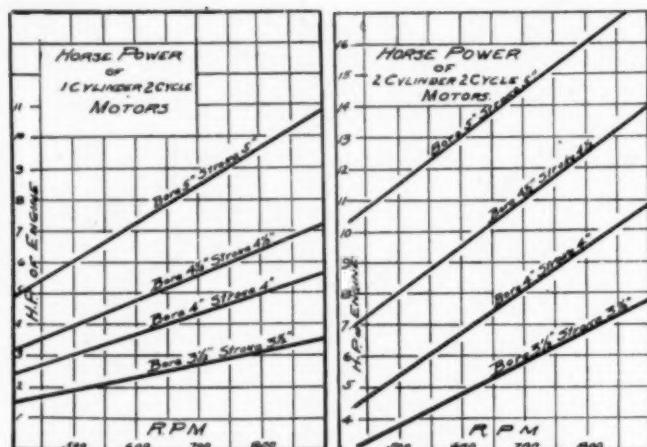
The sixty miler is a possibility this year, although the day of such a boat as a commercial proposition is some distance off. The forty-five miler at present represents about the limit for a really serviceable boat.

Henry R. Sutphen.
(Manager of Electric Launch Company).
(Continued on page 88.)



be almost as good as the man who guesses on what will be the speed of the fastest boat this year. I believe that the speeds of hydroplanes will be increased very materially within the next few years as the result of improvements in the construction and details, but more particularly because of the development of new principles in both hydroplane and engine construction. It is difficult to foresee what speeds will eventually be at-

*The speeds given as the records for the various years on the curve above are in each case based upon the fastest mile made in any race during that year. These high water marks were taken rather than the average speed for the entire race in which they were made, as the question above deals merely with speed, regardless of the time for which it was maintained.



These curves show the average manufacturer's rating of horsepower for several popular sizes of two-cycle marine motors and indicate how this depends upon the revolutions of the engine.

MANY of us have noticed and wondered at it deeply, as well, why it is that there is such a wide difference of opinion in the manufacturers' horsepower rating given to engines of similar bore and stroke dimensions. Examples are not rare by any means where this difference amounts to as much as 50% and when such condition does exist it is not strange that the mind of the buyer should be somewhat confused.

This condition does not arise from the manufacturers' over desire to sell their products but is a natural outcome of the laws representing horsepower developed by any moving body. When we remember that the meaning of the term horsepower is the "rate of doing work" we see that the size of the body moved is only part of the story and we must know in addition how fast this body is moved to determine the power, or in other words it takes as much power to move a small body at a fast rate as it does to move a large, heavy body at a relatively slow rate of speed, other conditions remaining the same, of course. This is just the reason why one motor of say 4" x 4" is rated at 3 1/2 h.p. and another of exactly similar dimensions at 7 h.p. But if we examine into the case a little further we will see that the former rated horsepower at 500 the 7 h.p. machine at 1000 secret of the whole situation varies in direct proportion things being constant. This between certain upper and as these limits are rarely we need not worry much

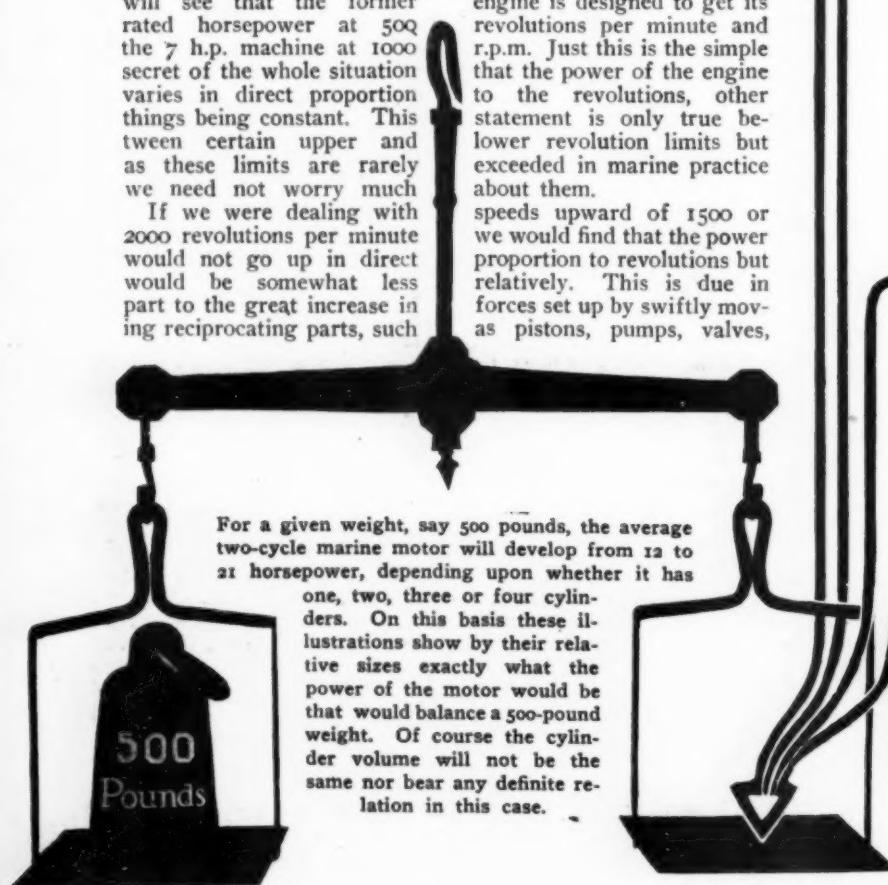
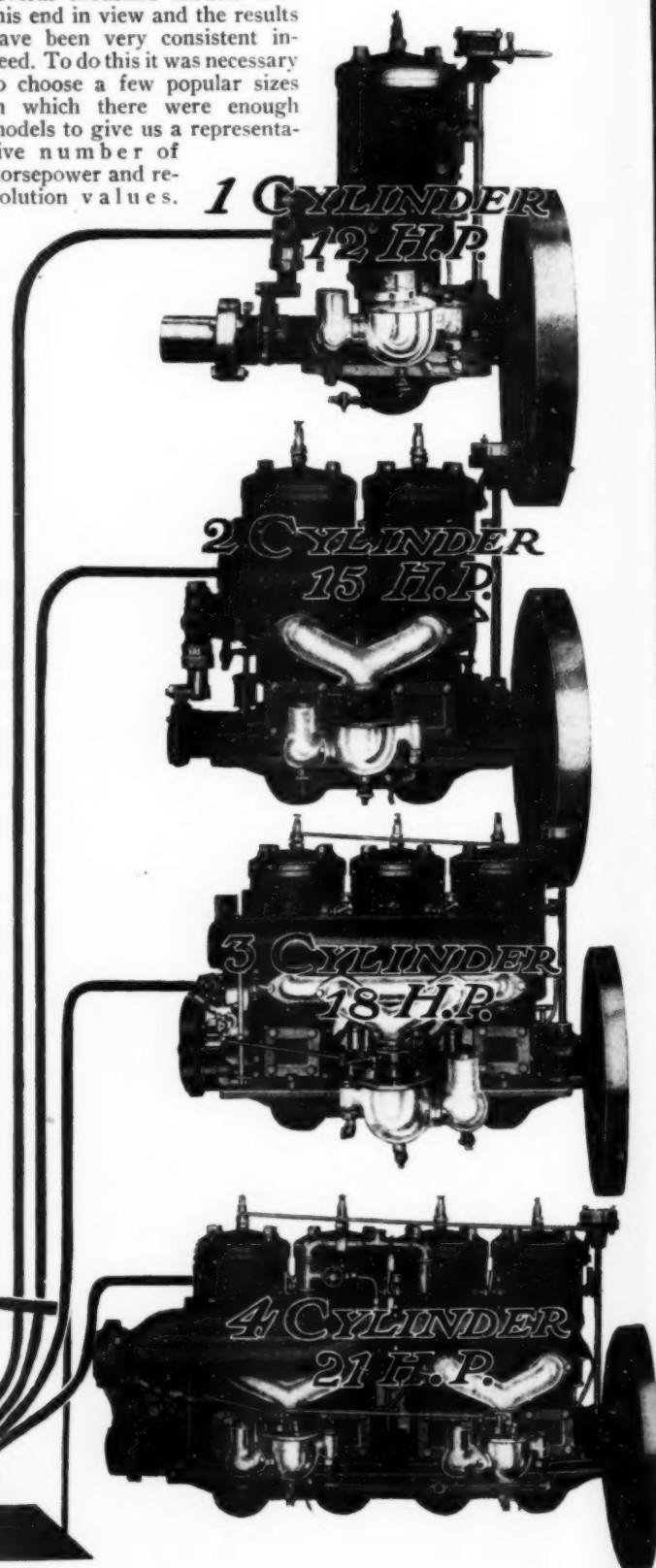
If we were dealing with 2000 revolutions per minute would not go up in direct would be somewhat less part to the great increase in moving reciprocating parts, such

Power, Weight and

Why It Is That One Motor Delivers More Power
Why the Light Weight Motors Turn

etc., and the difficulty in passing the gases, both inlet and exhaust, through the ports without undue resistance at high speeds.

To find out whether there was any logical reason for the way the marine engine manufacturers were in the habit of rating their engines, we have analyzed this month, data of several thousand models with this end in view and the results have been very consistent indeed. To do this it was necessary to choose a few popular sizes in which there were enough models to give us a representative number of horsepower and revolution values.

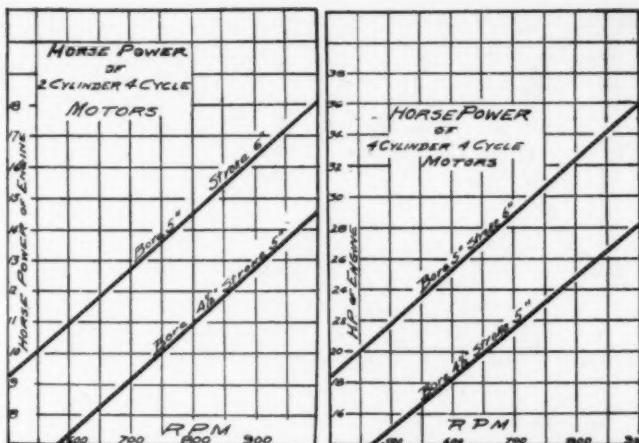
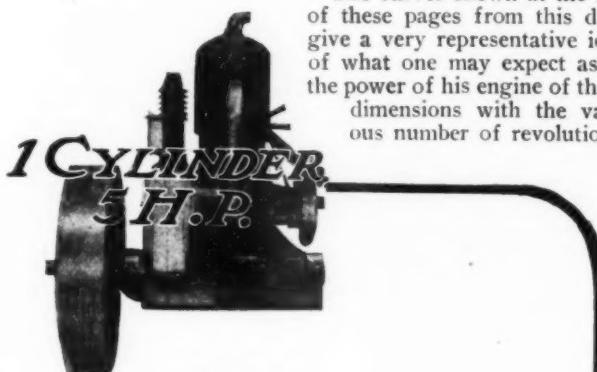


Speed of Motors

Than Another of the Same Bore and Stroke and Up Faster Than the Heavy Ones.

These have been plotted and average curves drawn which are shown at the top of these pages. It will be seen that in each of the 12 sizes of models chosen, the data indicated exactly what would be expected from the above theoretical discussion, although there is some influence of the motion of reciprocating parts indicated which gives a slightly different slope to some of the curves.

The curves shown at the top of these pages from this data give a very representative idea of what one may expect as to the power of his engine of these dimensions with the various number of revolutions.



In four-cycle practice the manufacturers of horsepower ratings seem to indicate that they have found that the power does not increase quite in direct proportion with the revolutions per minute.

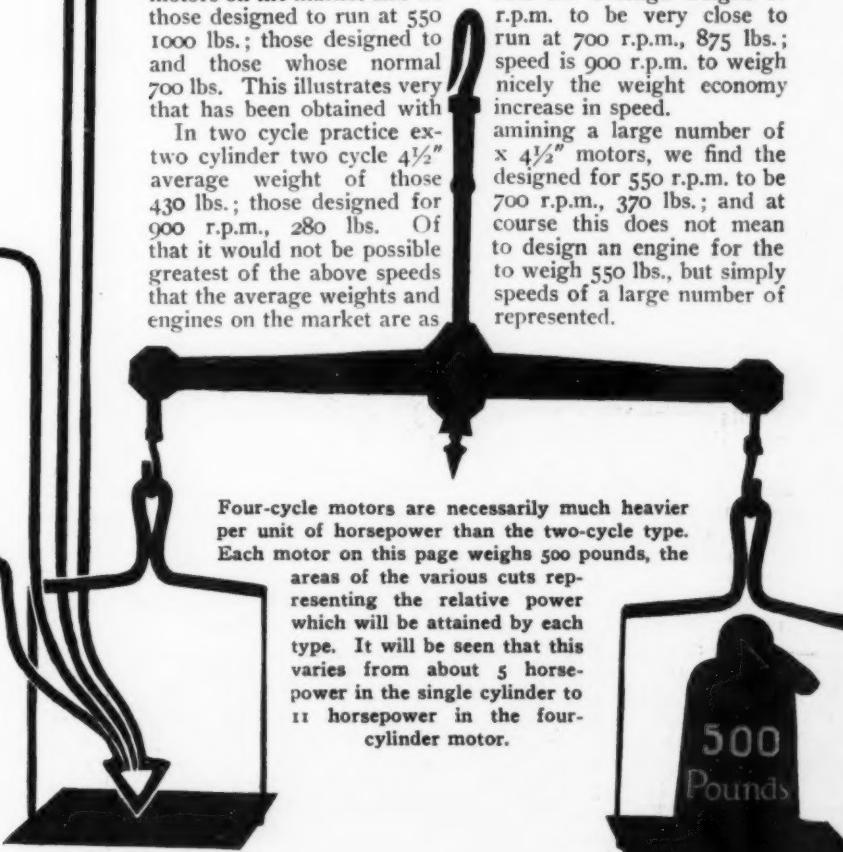
Analyzing to determine if there is any rule or formula which will fit these curves by which one may determine the horsepower of an engine of different bore and stroke dimensions, we find that a very close approximation is obtained from the following: For two cycle engines, Horsepower = $(\text{Bore}^2 \times \text{Stroke} \times \text{R. P. M.} \times \text{No. of cylinders}) \div 10400$. For four cycle engines, H.P. = $(\text{Bore}^2 \times \text{Stroke} \times \text{R. P. M.} \times \text{No. of Cylinder}) \div 15300$.

The horsepower developed by many individual motors may vary from the above values slightly one way or the other, due to slight differences in design and also for the reason that was explained last month that manufacturers have generally rated the multi-cylinder engines slightly higher than values directly proportioned to the number of cylinders.

Another interesting characteristic of standard motor design is the relation of average weight of the motors to their designed revolutions per minute. Of course it is a well known fact that the lighter the moving parts the greater will be the speed, other things remaining constant. Of course the size of the ports and valves must be also correctly designed to meet the increased velocity of the gases.

Take for example all the four cylinder four cycle 5" x 6" motors on the market and we find the average weight of r.p.m. to be very close to run at 550 1000 lbs.; those designed to and those whose normal 700 lbs. This illustrates very that has been obtained with

In two cycle practice ex- two cylinder two cycle 4½" average weight of those 430 lbs.; those designed for 900 r.p.m., 280 lbs. Of that it would not be possible greatest of the above speeds that the average weights and engines on the market are as amining a large number of x 4½" motors, we find the designed for 550 r.p.m. to be 700 r.p.m., 370 lbs.; and at course this does not mean to design an engine for the to weigh 550 lbs., but simply speeds of a large number of represented.



Four-cycle motors are necessarily much heavier per unit of horsepower than the two-cycle type. Each motor on this page weighs 500 pounds, the areas of the various cuts representing the relative power which will be attained by each type. It will be seen that this varies from about 5 horsepower in the single cylinder to 11 horsepower in the four-cylinder motor.

Down the East Coast

Assisted by Motor, Sail,
Querida Plows Onward to the

To anyone interested in the subject of geology, to the student of the soil and its chemistry, to the archaeologist seeking new subaqueous excavations, and to the hydraulic engineer looking for up-to-date and original methods of dredging, the skipper and chief of Querida II heartily recommend a cruise through the inland waterways of Florida's east coast in a boat of over one foot draft. We guarantee the aforesaid scientists a full and complete opportunity for determining the ingredients and composition of the bottoms of every river, lake, bay, lagoon and canal that lies between Jacksonville and Miami, while the dredging gentleman will be filled with awe and admiration as he watches the wise old captain of the passenger boat calmly turn around

when reaching a spot where the bottom almost peeks up through the top, and with propeller whirring busily in advance, like a rotary snowplow, dig his way through to the vast depths of mid-channel,—four feet. If the good people who live along the banks of the Halifax River would empty a few pailsful of water off their wharves each morning; if the gentlemen who are draining the Everglades would turn some of their surplus product, after straining it, into Lake Worth, and if all yachts coming through would take exactly the same course so as in time to wear a good deep rut like the roads in Vermont, a great good to yachting and motor boating mankind would be accomplished.

What puzzled us most as we shoved off our sixty-first sand bar was why so many pleasure craft of all kinds should endure this harrowing and burrowing ordeal twice annually year after year and not give it up in disgust and go elsewhere or nowhere through the winter. For unlike our megneto the magnets of the Keys and Biscayne Bay seem never to waken, never to require remagnetization; but on the contrary, to grow stronger and stronger from season to season, attracting new friends from more and more distant ports, while the old ones return with unceasing devotion.

"Must be some place, all right. Catch me trying this infernal ditch again. Why—." The words which the skipper had been about to utter were suddenly changed to others more appropriate. For just at that moment the sprit, now used more frequently as a shoving pole, broke off in mid-mud, and the propeller which had been reversing valiantly for a half-hour succeeded in grasping the dink's painter with diabolical cleverness, while the weary engine heaved a tired sigh and "died"

By Bradford Burnham
Photographs by Alfred F. Loomis.

Although the difficulties that lie in the path of the cruiser from Jacksonville to Miami are numerous and varied, the goal is worth all the hardships. This installment of Querida's cruise covers the famous Florida East Coast and brings us at last to the winter Mecca of the migratory fleet of the north. Here most boats stop, but Querida and her crew will push on through the peninsula via the little-known Everglades and Lake Okeechobee to the west coast, a route that but few boats have traversed.—Editor.

Miami, to place one in full preparedness for and proper sympathy with the picture he glimpses when entering upon the clear, clean waters of Biscayne Bay. The myriads of snow white yachts and motor boats, some resting quietly at anchor with colors flying, others gliding about with the ease and grace of swans; numerous speedy power tenders, spick and span with their polished brass and piano finished plankings, lending animation to the scene; a broad and shaded Clubhouse piazza filled with people gayly clad in cool, summery things; behind, a broad green lawn flanked with waving cocoanut palms and dotted here and there with the delicate pink of the rose and the flaming red of the hibiscus;—all in February,—presents to the eye a scene which corresponds pretty closely with one's conception of fairyland or some such place. The spell does not reach its height, however, until one glides out the gateway for a run upon the broad Atlantic, here of a deeper blue than anywhere else so close to shore, because only a stone's throw away the Gulf Stream pursues its constant, never varying flow, tempering the waters and filling them with fish, while closer inshore the clear depths are so transparent that one may look through twenty-five or thirty feet of water and see the sand and coral on the bottom. Then, skimming back across the placid waters of the Bay we come to anchor at sunset and as the echo of the gun dies away and ensigns are lowered, watch the birth of the calm, warm night and see the millions of stars spring out of the deepening twilight with only tropic brilliancy.

It is just as well we didn't know beforehand just how like fairyland "Mecca, U. S. A., " really is once you reach it, or our impatience would surely have far surpassed the danger point and we would have undoubtedly had to turn the fire extin-

Pole and Shoulder, Que-Brink of the Gulf Stream

softly. With wistful memories of the deep and sharkless waters of Long Island Sound the chief donned his diving dress, consisting chiefly of a coat of tan, and disappeared in the direction of the keel.

Yesterday we discovered the secret of the southland's power, saw the beautiful magnet itself, felt the spell of America's tropics steal upon us with all its irresistible charm and potency, and, we very much fear, took a big deep bite of the lotus. Probably it

takes the very vivid, persistently vivid, memory of ice and snow, of foot deep bed coverings and half dozen sweaters worn at once, of biting winds and raw, wet, penetrating mornings, to say nothing of the wallowings through waterways where water is as scarce as derby hats in

February,—presents to the eye a scene which corresponds pretty closely with one's conception of fairyland or some such place. The spell does not reach its height, however, until one glides out the gateway for a run upon the broad Atlantic, here of a deeper blue than anywhere else so close to shore, because only a stone's throw away the Gulf Stream pursues its constant, never varying flow, tempering the waters and filling them with fish, while closer inshore the clear depths are so transparent that one may look through twenty-five or thirty feet of water and see the sand and coral on the bottom. Then, skimming back across the placid waters of the Bay we come to anchor at sunset and as the echo of the gun dies away and ensigns are lowered, watch the birth of the calm, warm night and see the millions of stars spring out of the deepening twilight with only tropic brilliancy.

It is just as well we didn't know beforehand just how like fairyland "Mecca, U. S. A., " really is once you reach it, or our impatience would surely have far surpassed the danger point and we would have undoubtedly had to turn the fire extin-

Down the

guishers on each other to quell the flames of wrath. For, like the trains on the railroad we paralleled on the way down from St. Augustine, we "hesitated" at frequent intervals. The hesitations that were voluntary were all right and altogether enjoyable; it was upon the involuntary ones that the rub came,—with keel on sand, or mud, or muck. In the first place we took a good loaf at Jacksonville, the metropolis and gateway of Florida. Also we got busy with scrubbing brush and paint pot with such diligence that Querida looked twenty years younger and prettier while Knee Deep took on such a heavy cargo of pride over her beautiful new dress of white and green that it nearly sank her. For the sake of precaution we took down the engine and found the crank shaft and pistons still there with nothing more serious amiss than one worn connecting rod bearing which we had renewed. Incidentally we want to mention that we haven't touched the bilge pump for so long that we don't know where it is. Please rub wood for us.

Leaving our equipment and tender at Jacksonville we took a run up the St. Johns before starting down the east coast. After the twistings and the turnings of the route from Charleston to Jackson-



Running into Jacksonville with a fresh coat of paint, Querida looked twenty years younger.

ville, it did seem good to find ourselves on a body of water where for seventy-five miles there is a least depth of eight feet and a width varying from one to four miles. But what boosted our spirits skyward at this time was not so much the amount of water, as Querida's surprising dexterity in getting over it. This was our first run without our equipment and tender since we had installed our clutch and new wheel at Philadelphia and we were both astonished and delighted at the speed made. In fact we made such good time that we twice ran by places we wanted to stop at thinking that we could not have reached them. We are mighty thankful we didn't get by them altogether, however, for here again we found friends who added immensely to our store of happy hours ashore and gave us further evidence of the kind of hospitality one cannot forget. Though deeply laden with oranges, grape fruit, and pleasant memories Querida returned to her berth at Jacksonville in exactly five hours, the distance covered in that time being fifty miles, with a fair tide part way and a head tide



Making up for the cold trip down.

East Coast.

the rest. That run down this majestic river, half of which we made by moonlight, is a run which will also live long in our memories.

After our somewhat strenuous wanderings off the coast of Carolina, sometimes under power furnished from within and sometimes from without,—at the end of a towline,—as recounted in last month's MoToR BoatinG, we had come to the conclusion that the coast line of the Carolinas was decidedly extensive. Now we think it is a tiny stretch, for we have been down the east coast of Florida. As before intimated Querida did not come directly through without a stop. We'd like to see the boat which has. In fact the east coast lives in our memory as just one sand bar after another. The places selected for these little entertainments are interesting. They seldom lacked publicity and an enthusiastic and pseudo-sympathetic audience. The first occurred in St. Augustine harbor in splendid view of the fleet of yachts there and the crowds upon the shore

front. We were directly off the ancient Fort San Marco, which even antedates some of the passenger boats on the St. Johns. But we didn't fully appreciate its charm at the moment when stuck on that sand bar with a falling tide. Thank fortune, we got off unassisted, however. Having a paintless tub drawing perhaps

eight inches come up when you're stuck fast and offer you a tow-rope makes you feel like a seasick

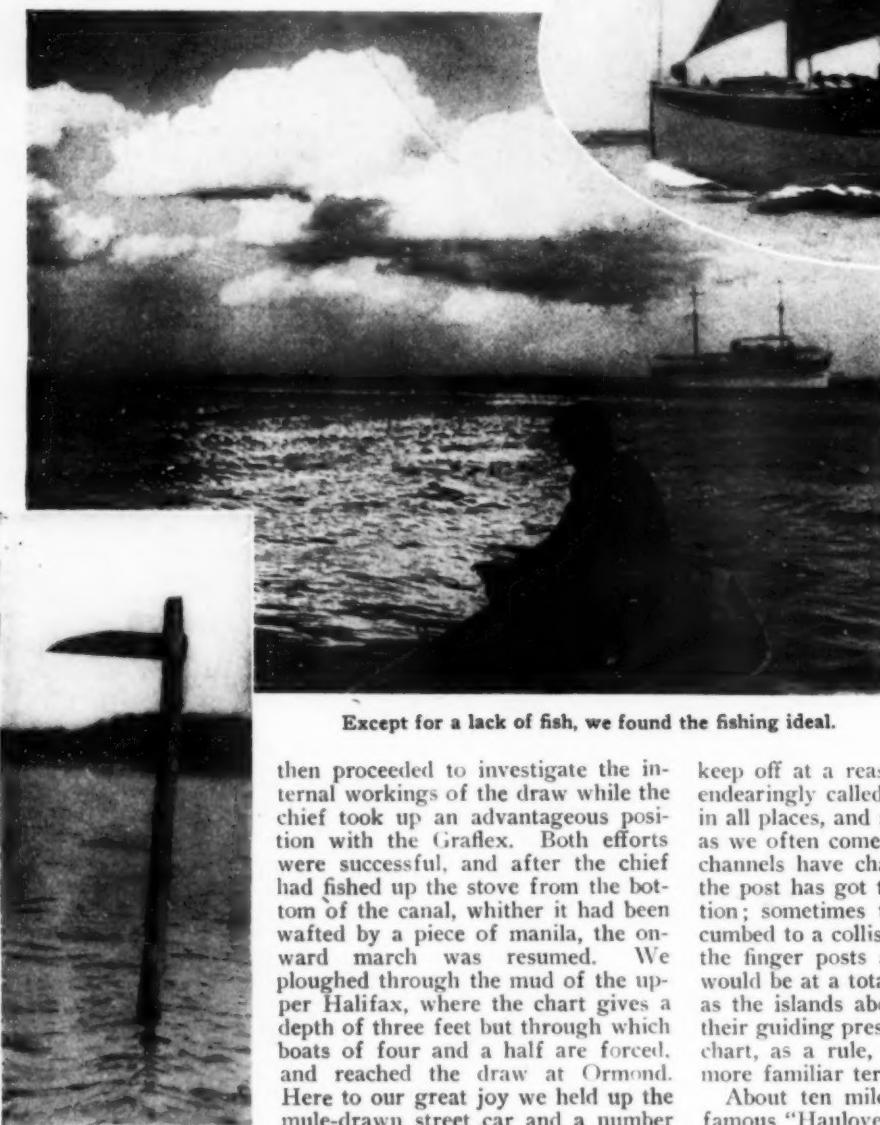


The bridge above Ormond is unattended and who ever goes through the canal must operate it himself.

passenger when a mutt who is a born sailor comes up swelling with ill-concealed pride and asks if he can be of any help.

After visiting St. Augustine's barber pole lighthouse and inspecting the "old slave market" which is neither old nor an emporium for slaves nor a market, and never has been, we got under way for Daytona. We accomplished this run with only one grounding and no special incident except the "Adventure

of the Drawbridge." This interesting bridge spans the mighty canal some fifteen miles above Ormond. Having been warned that it is an unintended structure and that one may honk and whistle till Doomsday and nobody will come and open it, we slowed down on approaching it. In fact, we stopped. The skipper



Except for a lack of fish, we found the fishing ideal.

In most of the shallow waterways of Florida "finger posts" instead of buoys are used to mark the channel.

on our return down the St. Johns when we held up the Palm Beach Limited and another long train of Pullmans at the big railroad drawbridge.

We spent about a day under the friendly charge of the Halifax River Yacht Club at Daytona and then moved on to New Smyrna, fifteen miles below and just south of Mosquito Inlet, where the fishing is said to be very fine. If so, it is because few people are able to solve the intricacies of the channel at the Inlet, probably because there isn't any, or rather because what there is, changes over night. Here we found the only civilized buoys we had seen in the South except in the St. Johns. The nuns and cans looked very attractive in their fresh paint, but one of them was out of place or else the painter got his brush in the wrong bucket, for we observed it faithfully and "fetched up" hard. We have found that it is a poor



Ruins of the old Spanish fort at Matanzas Inlet.

The sail helped a lot on the outside run to Miami.

business to follow buoys too diligently in this remarkable country, especially at the inlets, where the channels shift after every storm. At these places the water is usually clear, however—if there is any—and the shoals can be discerned in time to prevent grounding. Our log doesn't seem to exactly bear out this assertion, but it is theoretically correct anyway. Of course, the most common method of buoyage in Southern waters is by what are known as finger posts. These are merely heavy stakes stuck in the ground, sometimes through an iron pipe, with a crosspiece pointing out the side you are advised to take. If there is a bevel on the top of the crosspiece you are to pass it close to; if the bevel is on the bottom,

keep off at a reasonable distance. The "F.P.'s," as they are endearingly called by the Southerners, are not to be relied on in all places, and should never be approached at a sharp angle as we often come up to a buoy in the North. Sometimes the channels have changed where the "F.P.'s" stand; sometimes the post has got turned about and points in the wrong direction; sometimes the post is missing altogether, having succumbed to a collision with a raft or lighter. But on the whole the finger posts are an invaluable aid to the stranger, who would be at a total loss to know the way through such a place as the islands above Mosquito Lagoon, for instance, without their guiding presence. The finger posts are not shown on the chart, as a rule, though occasionally one is down under the more familiar term of "beacon."

About ten miles down Mosquito Lagoon we came to the famous "Haulover," where boats were formerly hauled across the narrow strip of land to the Indian River. We humbly suggest a change to "Pushover," for though a canal has now been dug through and has good water in it, it begins somewhere out in the Lagoon. Just where it is difficult but important to find out before trying to enter. Once in, however, we chugged up to the dock along the side which makes a splendid place for lying over night. Here is found the attractive little settlement of Allenhurst, with its quiet and inviting little hotel, its pretty palm walks and beautiful views. There are fish enough in the vicinity to tempt one to linger a while, and game in the form of all varieties of wild duck abounds. From across the lagoon we hear the roar of the breakers pounding on a beautiful beach.

The next two days found Querida II hustling down the far-famed Indian River with both sails set and a stiff "Norther" pushing her along in the way that cheers. At Rockledge and Cocoa we acquired more oranges and grapefruit and pleasant memories of generous friends, the kind one hates to leave and wants to see again, while the River afforded a welcome respite from running aground. Any sport, no matter how exhilarating,

(Continued on page 84)



Building Old Glory

Part II.

THE January issue practically concluded the subject of building Old Glory II, and the launching and success of the boat have already been recounted in other numbers.

The "cost system" in detail on the following page will, I think, prove of great interest to anybody contemplating building a boat, as it is complete, and the prices stated are those actually paid for the different articles. The value of this to the reader who builds will be in the fact that everything that goes into such a boat is included therein, and using this statement as a basis for figuring out his own particular design, he should be able to estimate the cost within 5 per cent. One has to build a boat to gather this data, and the way I gathered it was to put a memo in an envelope each time I purchased anything, so that I was able this winter to sit down, at my leisure, and work out the statement shown.

The various percentages of the different items are of interest. For instance, we find that the design cost but seven-tenths of 1 per cent. of the total cost of the boat—practically the smallest item in the whole outfit.

Adding the two items of engine and cost of installing together we find that they amount to 66.2 per cent. of the total cost, and herein lies the biggest expense, as it is possible to put in an engine according to one's desires in that respect. There are lots of real good engines on the market nowadays at very reasonable prices. In choosing the Loew-Victor in my boat I certainly picked a winner. It certainly is one of the delights of cruising not to have to think about your engine. What little experience I have had in boating has proved to me that it is false economy to put any poor article of any kind on a boat. Particularly do I believe this true with the installation and piping, and very often a large percentage of waste power, water pump troubles, hard starting, etc., are due to this false economy.

It has always been my inclination, and was particularly so in this boat, to use the best materials and spare no expense, and she could have been well built, and yet much cheaper, if desired. A list of the particular points where savings could be effected might be interesting to those who desire to build as economically as possible. The following amounts could be saved, in one way or another, by either using a different material or leaving out certain things I have used that were not absolutely necessary:

Overhead Expense—By not having to buy cover or platform or use electricity \$22.40
Lumber Used—By using cedar where mahogany was used (lumber is variable in different localities), about... 15.00
Fastenings—By nailing decks, floors, etc., instead of brass screwing, about 5.00
Plugs or Bungs—By using putty or cement this entire item could be saved, except cost of putty or cement or beeswax 10.75
Marine Hardware—Fully the amount

Further Suggestions for the Amateur From the Experience Gained in Building the Famous Ocean-Going Runabout, Old Glory II, With a Complete Table of Expenses.

By Geo. P. P. Bonnell.

This is the last and in many ways the best of Mr. Bonnell's series of articles on Old Glory II, her remarkable cruise and his experience in building her. We feel perfectly secure in saying that the table of expenses on the following page is the best thing of its kind ever published, and it should be valuable not only to the amateur builder, but (we whisper it) to many of the professionals as well. To motor boatmen like Geo. Bonnell, the sport owes a great deal, and we feel that we have been fortunate in obtaining such a splendid series of articles from him for the readers of *MoToR BoatinG*.—Editor.

shown could be saved by leaving out certain items not absolutely necessary
Paint and Varnish, Etc.—About \$5 could be saved on this, and still a good job done.....

Carving Name and Scroll—This entire amount could be saved.....

Engine Installation—Entire plumbers' bill and certain other items could be cut down

Furnishings and Equipment—These can really hardly be included as an expense of building.....

Launching Expense—This might be cut out altogether in certain cases. I was a mile from the water. In most cases it could be done for \$10, saving....

Express and Cartage—Could probably in many cases be reduced about.....

Making a total saving of.....	\$207.16
My total cost was.....	\$1099.28

Deduct:

Cost of engine.....	\$620.00
---------------------	----------

Above estimated savings..	207.16
---------------------------	--------

25.00
5.00
20.00
35.00
54.01
5.00
10.00

and night. I well remember many a "kink" in my neck while steering my first Old Glory between New York and Nova Scotia, sitting on the conventional wheel box; particularly one instance of being there 26 hours at a stretch. They make mighty good house furniture in the winter, and certainly add to the comfort and appearance of any boat. Our cockpit, 9 x 4½ feet, will easily accommodate eight of these chairs, if necessary, and still leave plenty of room for getting around. The cost is less, in my opinion, than the value of the lumber and expense of putting in seats.

I have not discussed in any way the tools necessary to build such a boat. The following would do the work nicely: Crosscut saw, rip saw, dovetail saw, compass saw, hock saw, three chisels (½, 1 and 1½ in.), gouge, hammer, mallet, fore plane, smooth plane, rabbit plane, steel scraper, dividers, 2 ft. rule, tape measure, square, automatic screw driver, hand drill and drills, brace and several bits, two rasps, draw knife, marking gauge, ball peen hammer, spirit level, spokeshave, caulking irons and putty knife.

The above list could, of course, be added to or diminished, according to one's desires, but the tools mentioned are sufficient to do all work required. About a dozen iron clamps (six 3 in. and six 5 in.) will be found handy in planking, and these are cheap. To do good work in planing, etc., a work bench and vise is essential. This should be very rigid for good work. Also two saw-horses are a convenience. The entire list of tools mentioned above could be bought for about \$20 in such a place as Hammacher, Schlemmer & Co.'s, in New York, and even less tools can be used if necessary.

The greatest difficulty of amateur boat building, as I see it from the viewpoint of studying the cases of a number of friends, is getting them started. They keep putting it off month after month, when if they only bought their design and did a little here and there the boat would soon be built. And for those who enjoy work with tools there is a great deal of pleasure in building a boat. It is clean, healthy work, particularly for those of us who work

with our heads during the day, and the greatest fun of it all is the day of the launching and subsequent use of the boat, for one certainly does appreciate a boat twice as much if it is his own handiwork. I think there is almost as much enjoyment in building as in the future use of the boat, and we all know the fine times it is possible to have on "Old Ocean."

I expect to get a good deal of fun out of building "Old Glory III," a Hand V-bottom

raised-deck, ocean-going cruiser with fine accommodations and capable of 17 miles per hour, and have already spent several evenings "doping" out an "estimated cost" and drawing my patterns on paper for frames. This is a good-sized boat, but it is possible, as stated in the first instalment of this article, to build a large part of her in the attic, between now and May; plank her outside in the yard this summer, turn her over and put in bulkhead

and deck by the fall, put in her coal range, wire electric lights from house into her, and finish her up during the coming winter and spring, so that by the first of May, 1914, she will be ready to launch.

In closing these articles on "Old Glory II" I hope that they will have resulted in inducing many amateurs to build, and in smoothing over some of the rough spots that are bound to be encountered by the inexperienced.

Detailed and Summarized Statement of the Cost of Building the Ocean-Going Runabout Old Glory II.

British 21-Footers

for Monaco

British 21-Footers racing at Monaco.

A Description of the Little Boats that Constitute One of the Most Popular Classes at the Annual Continental Regatta. Their Design, Construction and Power Plants.

By Lawrence B. Chapman.

RACING promises to be lively at the International Meet on the Mediterranean in April—for already a number of entries have been made by France, Italy and England for the Monaco races.

The B. M. B. C. twenty-one-foot class, which has been growing in popularity every year is going to be by far the most popular this spring. Already there are known to be eleven boats building in England for this class. Saunders & Company, of Cowes, have eight twenty-one footers well underway, six of these, all from the same lines, are of Cox and King design and two of Saunders' design. The Cox and King boats are a copy of the Dyack, which did so well last year both at Monaco and on the English coast. The two other boats are nearly the same, being Mr. Saunders' improvement over Cox and King.

Each owner intends to install a different make of engine. Three of the makes will be the Sunbeam, Austin and Wolseley. Two of these makes are known in America, the Austin being used in Maple Leaf IV and the Wolseley-Siddeley in the challenger of the same name.

These boats are an innovation both in design and construction and a description of them should be of interest to the American. Through the kindness of Messrs. Saunders & Company, the writer was enabled to visit their plant and spend a day watching the boats under construction and study their design.

* * *

As previously stated, six of these boats are of Cox & King design, being, with a few changes, a copy of Dyack of last year. Dyack, whose engine is of 151 cu. in. piston displacement, made 26 miles with her engines running at 2,200 r.p.m. While this doesn't touch the speed of Baby Reliance, it must be remembered that Dyack had very small power compared to Baby Reliance. Taking this into account, 26 miles is indeed a remarkable performance.

The special characteristic of these boats is that they have no steps whatever, nor any flat surface on the un-

The last few years at Monaco have seen the steady growth of a class of small boats that has come to be known as the "British 21-foot Class." These little craft are not hydroplanes, in the strictest sense of the term, although the speeds they attain are quite remarkable for the moderate power installed. They are good, everyday boats, which accounts for their success, and Mr. Chapman's description of their unique design and construction will be found interesting.—Editor.

derbody. Strictly speaking, they cannot be called hydroplanes, yet they behave exactly like one. Forward, the sections are quite full, being of a bulbous form. Passing aft, the waterline widens and the sections become very rounding, giving the boat a belly, as it were. Aft of amidships the sections gradually flatten out and become shallower, terminating in a straight line at the waterline at the transom. The underbody and the sides meet in a sharp chine. The sketch shows sections of these boats forward and amidships. In practice, these run on their keel line, lifting the whole bow sections out.

To look at the underbody of these boats one sees in an instant what a great departure has been made from the accepted hydroplane. There are no flat broad sections to pound in a seaway. The boat will meet a sea easily and the form of the sections is such that there can be no pounding whatever. The performance of Dyack last year in the rough water of Monaco showed her to be a wonderfully fast boat in a seaway and also

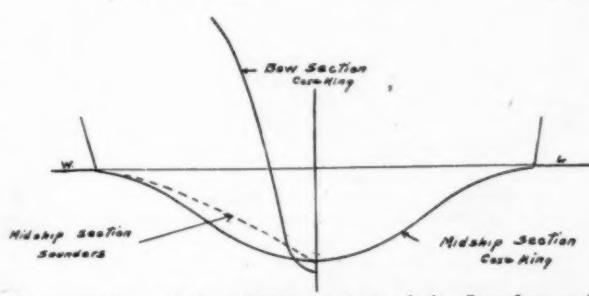
a remarkably strong little craft. As regards dimensions, these boats are 20' 6" overall, 4' 9" beam and 14" draft forward. They will be equipped with 50 h.p. motors. The Saunders designs are very similar to the Cox and King except that the sections are much sharper forward and have less of the belly amidships, as shown.

* * *

WHILE these boats are extremely interesting in their novel design, their construction is even more interesting and unique. There were six boats under way at the time of my visit and each one was in a different stage, giving a most unusual opportunity to study their construction.

The boats were built in the usual way over molds and battens, but they were spaced very closely together, the molds every two feet and the battens every two inches. The frames of American elm are $\frac{1}{4}'' \times \frac{3}{8}''$ spaced 4" on centers. These are mortised into the keel. The planking is double. The first thickness is of $\frac{3}{32}''$ mahogany laid diagonally at about 45° to the keel. As mentioned before these boats have a chine at the waterline which ordinarily makes a difficult construction. Saunders, however, has an ingenious method of avoiding this. The molds are built up with a rounding bilge instead of a chine and the first layer of planking extends from keel to deck, being steamed only at the turn of the bilge. These planks are fastened to the frames with only a few tack nails, enough to hold them in place

temporarily. The first thickness of planking is covered with a thin canvas, well soaked in oil. A chine piece is now fitted, sort of triangular in section, two sides forming the right angle of the chine and the third side concave, and this is fitted to the curve of the bilge. This chine piece is cut from a piece about $2'' \times 2''$. This piece is then worked down so that its upper and lower edges are $\frac{1}{8}''$ thick. This allows the outside layer of planking, which is $\frac{3}{16}''$ thick to come flush with the chine piece on the bilge. The outside layer below the bilge is laid diagonally about 30°



A comparison of the midship sections of the Saunders and Cox & King 21-footers.

to the keel, but in the opposite direction to the first layer; above the chine the planking is also fastened only with several tack nails. It might be mentioned that the first thickness of planking is made up of 4" strips and the outer thickness of 6" to 7" strips.

The boat is now removed from the molds; the molds being taken down inside of the boat and all fastenings to the frames and planking cut. The nails fastening the frames to the stringers are of a special kind with no heads allowing them to pull through when removing the molds.

Now comes the part unique to Saunders—the fastening. No nails whatever are used, the whole structure being sewed with 3/64"

soft copper wire. The lines of sewing are spaced 2" apart fore and aft, and extend from keel to gunwale, the holes being spaced $\frac{5}{16}$ " apart. Thus we have one line of sewing fastening each frame to the planking and two lines of sewing between each frame, fastening the two thicknesses of planking together. This sewing is done very quickly, much quicker

than riveting could be done. The lines are marked out on the planking and the spacing of the holes marked. One man with an electric-driven drill bores all the holes, while a second follows him with a small electric-driven circular saw and connects the holes by a small saw mark to allow for the countersinking of the wire. Two men, one inside and one out, weave a wire back and forth through these holes, pulling it up tight each time and driving it home in the counter-sink groove with special tools. The boat, in all this operation, is, of course, bottom up. This line of sewing is not a straight line around the hull, but has a slight

(Continued on page 88.)



Dyac was prominent at Monaco last year and is the forerunner of a number of new boats for the coming season.

A Mess Chest for Small Boats.

A Cockpit Seat When Not in Use. It Holds All Necessary Provisions and Culinary Equipment and Makes an Excellent Dining Table for Six Persons.

By E. T. Keyser.

HERE is a combination which solves the mealtime problem of the open launch skipper, who desires to cruise—also that of the owner of the smaller cabin craft, many of which furnish very limited facilities for the stowage of cooking utensils, tableware and provisions.

Illustration No. 1 shows the chest closed, with cushion laid on it to serve as a seat. No. 2 shows it opened up with legs dropped, serving as a table, while the third picture is a top view with one flap removed to allow of one set of the supporting braces being seen. This mess kit is of $\frac{1}{2}$ inch stuff, finished both sides. The outside dimensions are, length 36 inches, width 16 inches, depth 10 inches. It is divided into three compartments, the outer ones being of the

in the center compartment are four heavy tin boxes, made to fit space. These have covers with lifting rings and hold coffee, sugar, flour and rice or some other cereal. The tops of these boxes are one inch lower than the tops of diving partitions, and upon them rests the knife, fork and spoon tray, shown in illustration No. 3.

The end compartments may be left unlined, but the better plan is to have made for each a heavy tin box with wired edge and folding ring lifts, so that they may be easily cleaned and the contents carried from place to place in bulk.

In building the chest, have front higher than sides and back to the amount of the thickness of stock of which the lids are built. This allows of the lids folding down on each other, when chest is closed. To support lids, make triangular braces of 3-16 in. brass rod, held in place by brass straps which will allow braces

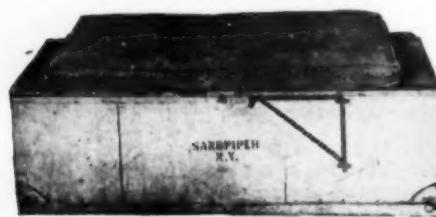
$\frac{1}{2}$ in. x 2 in. braced with brass or iron cross strips.

These may be hung to the bottom of the chest with heavy brass strap hinges fastened with brass stove bolts, with the nuts and washers inside the chest, the screw heads settling flush in the countersunk holes of the hinges. Do not attempt to fasten these hinges with ordinary wood screws or, some day they will pull out, leaving your coffee in your lap.

One cross brace to each pair of legs will serve the purpose and, to keep the legs from spreading and letting the table down, put just enough really serviceable chain between cross braces and bottom of box to allow the legs to have a moderate slope outward. Should table space for more than four be desired, two small shelves may be fitted with hooks to hang on ends of the chest, as shown in illustration No. 2. These will require one extra triangular brace for each.

The best way to finish is lead paint outside and three coats spar varnish for the interior of chest and also on the inside of lids, rubbing down with fine sandpaper between coats.

With a kit of this kind, keeping everything connected with the commissary department together in good shape and under lock and key, one can always be ready for a week end cruise, at a moment's notice.



When closed the chest forms a seat in the cockpit.



same dimensions while the center compartment is 8 inches wide between the partitions.

The left hand compartment will accommodate a frying pan with removable handle, four each cups, soup bowls, plates, aluminum tumblers—also two sauce pans with folding handles, coffee pot, bake pan, sliding handled grid iron, mop, dish towels and a few other kitchen utensils. The right hand compartment holds provisions.

The mess chest not only contains the provisions and galley equipment, but is convertible into an excellent dining table.

to swing close up to chest and be held in that position by brass clips, when chest is closed.

The illustrations show chest with angle iron legs but the easier way is to make these of oak

Below the tray in the middle compartment are tin boxes for coffee, cereals, etc.



The PRIZE CONTEST in QUESTIONS & ANSWERS

Building a Club Float.

Excellent Designs of Several Different Types Including the Barrel, Pontoon, Tank and Pile Floats.

THE PRIZE CONTEST—Answers to the First Question in the January Issue.

Designed for Heavy Use.

(*Prize Won—Credit with the Bayonne Launch Company.*)

A N essential part of a boat club's equipment is a properly constructed float; its size will necessarily be determined by the builders to meet local conditions. A convenient size for small boats is about 18' x 40' which will be ample for a good-sized fleet.

It should be remembered that the float is subjected to rough treatment at times and must be constructed accordingly. Only timbers of good quality, free from large or loose knots or other imperfections, should be selected and all of the fastenings, such as spikes, bolts and nuts, etc., should be of galvanized iron.

The longitudinal frames (*C*) are of 4" x 14" spruce timbers, spliced together to make required lengths with scarf joints, as shown in detail; the cross-frames at short ends are of 4" x 12" spruce timbers. Corners of the outer frames are secured with halved joints, as shown, made by notching each timber one-half its thickness, so the bottom surfaces are flush.

The other frames (*B*) and (*B'*) are of 3" x 12" spruce timbers, secured between outer frames (*C*) with mortised joints, as shown in detail. This method of framing and joining and splicing will eliminate much unnecessary spiking, and will help to construct a light, rigid frame.

The platform is made of 1" x 4" pine or spruce strips securely nailed at each cross-frame. Care should be exercised to lay strips (*D*) so that no joints come between the supports (*B*).

In the cutting of the timbers required, all the ends should be cut true and square in order that when they are spiked together the joints will pull up tight.

To float the frame and platform, ordinary hogsheads or oil barrels are used. These are placed in saddles (*G*) which are securely fastened to the under side of framework (*B*) as shown. Galvanized wrought iron straps (*K*), 2" x 3/8", are provided, as shown, to secure barrels in proper positions. The bungholes in the barrels are tightly plugged and they are placed so that the bunghole may be reached and the barrels pumped out if necessary from the top of the float. Ten barrels spaced as shown on the drawings will be found sufficient to hold the float with a goodly number of persons well above the waterline.

The small openings formed between the timbers (*B*, *M*, *E*) are provided to anchor the float permanently in place, and must be constructed with especial care. The anchoring is accomplished by driving a stake or light pile into the river bottom through these openings. This method of anchoring permits the float to rise and fall with the tide, but does not allow it to move in any but a vertical direction.

Two steel plates (*I*) are laid on the flooring strips upon which the wheels of the gangway may roll as the tide causes movement of float.

A gangway, as shown, should be securely fastened to the end of the string-piece by means of strong galvanized strap hinges (*L*).

Questions for the May Contest.

1. Suggest a schedule to be followed when putting a medium sized boat and power plant into commission, showing the order of doing the work, material and time required with cost figures. *Suggested by A. P. B., Cleveland, O.*

2. Explain and illustrate the method of bending and fitting a garboard plank and obtaining the proper bevel for the rabbet. *Suggested by C. E. Jordan, New York City.*

3. Give the best method of supplying fuel from one or more main tanks to the carburetor when the gravity system is not feasible. *Suggested by C. E. Jordan, N. Y. City.*

Rules for the Contest.

Answers to these questions, addressed to the Editor of MoToR BoatinG, 381 Fourth Ave., New York, must be: (a) In our hands on or before March 25, (b) about 500 words long, (c) written on one side of the paper only, (d) accompanied by the senders' names and addresses. (The name will be withheld and initials or a pseudonym used if this is desired.) Questions for the next contest should reach us on or before the 25th of March.

The prizes are: for each of the best answers to the questions above, any article advertised in MoToR BoatinG, of which the advertised price does not exceed \$25, or a credit of \$25 on any article advertised in MoToR BoatinG, which sells for more than that amount.

(There are three prizes, one for each question, and a contestant need send in an answer to but one if he does not care to answer all.)

For each of the questions selected for use in the next contest, any article advertised in MoToR BoatinG, of which the advertised price does not exceed \$5, or a credit of \$5 on any article advertised in MoToR BoatinG, which sells for more than that amount.

For non-prize-winning answers published we will pay space rates.

When you send in your answers, state what you will take if you win a prize.

To prevent unnecessary chafing of boats and float, the edges and corners may be protected by fenders, discarded fire hose or old hawsers will be found to answer very well.

F. W. HORENBURGER, N. Y. C.

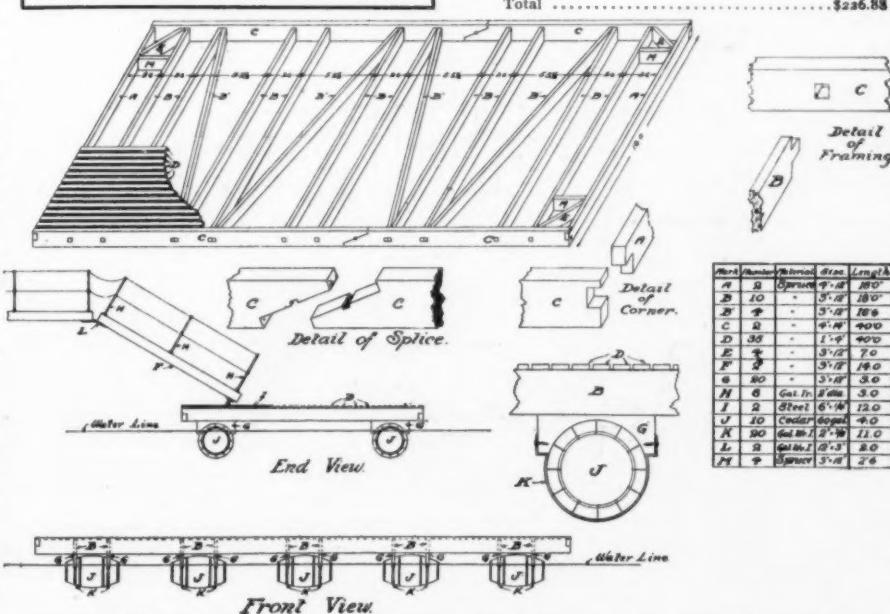
A Compartment Float.

BUOYANCY, durability, tightness and strength are essentials to be considered when building a good float. A pontoon float is selected in this case because barrels are not obtainable in all localities. Then a pontoon float is easily gotten ashore at the close of the season. When making the ends of the pontoons care should be taken to put a strip of canvas against the edges, laid in white lead, before planking to insure a water tight joint. The planking seams should be made for caulking with oakum. Tight on the inside and one eighth of an inch open on the outside.

A float made of pontoons this size will readily hold all the people liable to be upon it at one time.

Some arrangement must be made for pumping out, when put over at the first of the season as the pontoons will take water while swelling tight. The cost of such a float will be about as follows:

28 1/2 in. x 9 in. x 24 in. yel. pine for sides of pontoons	\$80.00
40 1/2 in. x 6 in. x 24 in. yel. pine for top and bottom	76.00
18 3 in. x 6 in. x 12 in. spruce for cross braces	26.00
4 3 in. x 6 in. x 16 in. spruce for washers	7.68
2 3 in. x 8 in. x 24 in. spruce for bumpers	7.68
2 3 in. x 8 in. x 12 in. spruce for bumpers	1.84
288 sq. ft. flooring	17.28
36 3/4 x 30 in. gal. bolts	5.00
36 3/4 x 8 in. gal. lag screws	1.00
10 lbs. 3-inch boat nails	.80
40 lbs. 4-inch boat nails	3.20
Total	\$226.88



Mr. Horenburger's plan with bill of material suggests a very simple yet strong construction.

The PRIZE CONTEST

A similar float can be built for much less than this if inferior materials are used. If a larger float is needed two can be added together. Iron bar yokes must be placed in each corner for the stakes that are to hold the float in place. If the float is to lay with the long side abreast of the tide the pontoons should be placed the other way around, as long as the short side and be three or four inches apart.

W.M. K. DODD, Montclair, N. J.

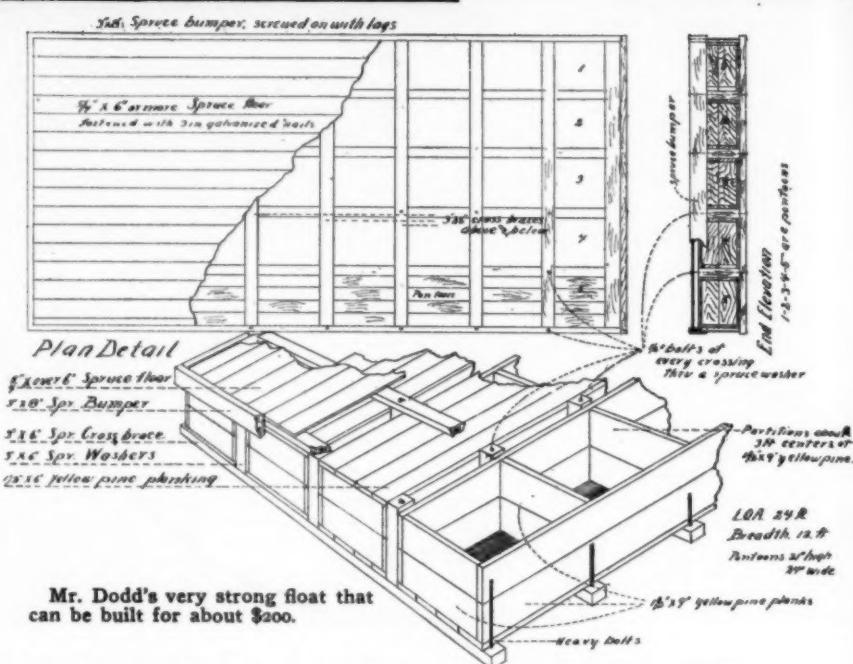
A Knock Down Float.

HERE is a float which was made by Club members and has stood the test of time. It comprises three closed pontoons which are made of $1\frac{1}{4}$ spruce with heavier pieces A of southern pine set into and running across their decks about 4 feet from the ends. From each of these project upward two $\frac{3}{4}$ inch bolts a distance of 7 inches. Near one corner is a square pump box B with hinged cover. This is also 7 inches high. C is a supporting strip near the center of the deck.

The three pontoons are connected by three transverse 4 by 6 inch beams, $16\frac{1}{2}$ feet long. The bolts extend through holes in the outer beams and nuts on them secure together the supporting frame thus formed. The middle transverse beam rests upon the supporting strips C.

The platform is made up in four sections, one of which is shown in the cut. Each of these is made up of six inch spruce boards, $\frac{3}{4}$ inch thick nailed to four pieces of 2 by 4 joist two of which are across the ends and the others so spaced as to rest against the sides of the bolted transverse beams to help hold the platform sections in place.

Through each of these platform sections passes screw ring bolts into the transverse pieces A of the pontoons. These serve the purpose of holding the platform sections on and are also used to tie painters to. Of course



Mr. Dodd's very strong float that can be built for about \$200.

the platform is cut away over the pump boxes so that the pontoons may be pumped out if they ever need it.

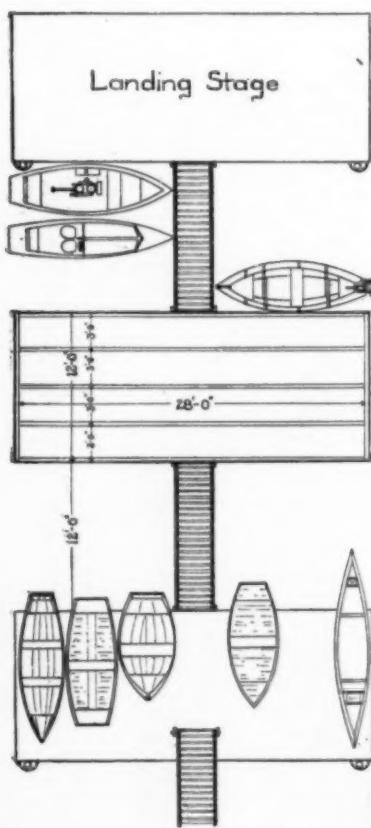
This float is inexpensive and easily built. But its principal point of advantage is the ease with which it may be handled. It is assembled on the water and taken apart when hauling out time comes. Oh that we might do that with our boats! Another valuable feature is that it may be enlarged when the Club requirements demand it, by simply adding one or two more pontoons and corresponding platform sections.

E. W. MARSHALL,
Yonkers, N. Y.

A Series of Floats.

A TYPE of yacht club float that is readily built by anyone that can handle a hammer and saw is shown in the accompanying drawing. It is of the sectional pontoon type which has many features, such as ease of enlarging as the club needs grow, ease in handling at hauling out time, accessibility to all tenders, maximum landing facilities, and general convenience. In practice each tender is assigned a position and is supposed to be kept, disembark and land at this point. The outermost pontoon is kept clear of small craft and is used exclusively by visitors and the large boats of the club in landing or taking on parties and supplies. Power tenders and other small boats that are left in the water are kept in the slips between the landing stage and the next inner pontoon with their bows tied to the gangplank.

Each pontoon is $12' \times 28'$ and is framed with five pieces of $2'' \times 12''$ spruce running lengthwise between two header pieces, all well spiked together. The bottom sides of the outside timbers are planed smooth and an 8" strip of canvas doubled and well soaked in heavy lead paint tacked around them. The bottom, of good clear $\frac{3}{4}$ " matched spruce is then securely nailed to the frame. This had better be in widths of not over 6" and fastened with galvanized cut nails, three to each bearing. The groove of each board should be filled with heavy lead paint just before being nailed in place. This will insure tight joints. With the bottom in place there is a flap of two thicknesses of canvas all around the outside edge. These are separated and one thickness carried up the side of the frame and the other down over the bottom boards. A wide board is nailed around the outside, holding this canvas in place and forming the outside finish to the float. If the canvas is well saturated with heavy lead paint, a very tight joint will result. The pontoon floor is of a cheaper grade of matched spruce boards. The gangplanks are made of three $2'' \times 5''$ spruce planks with $\frac{3}{8}'' \times 3''$ slat floors above and braces below. The railings are of 1" pipe driven into holes drilled in the frame with $\frac{3}{4}$ " wire rope rove thru holes in the pipes. The gangplanks are pivoted at each end by pieces of pipe to blocks on the pontoons. These blocks must be well fastened to the outside member of the frame as well as to two $2'' \times 4''$ cross timbers put in where the blocks come, for considerable strain comes on them. The shore and outermost pontoons should be moored in place by hoops surrounding piles or by chains, allowing



Section showing general construction
For clubs having plenty of water space Mr. Goddard's plan is a most excellent one.

The PRIZE-CONTEST

freedom to rise and fall. The shore gangplank should be mounted on a pair of truck wheels if there is much rise and fall to the floats. If space out into the channel is at a premium, the floats can be arranged along the shore line, in which case the gangplank would be at the shore end of the floats instead of at the center.

R. W. GODDARD, Boston, Mass.

Float Supported by Metal Tanks.

THE plans show a club float constructed on circular tanks. A great number of these are used on the Saginaw River to float boathouses and floats of various kinds. They stand the strain of the ice in winter and give good satisfaction. Many of them have been in service for a number of years. The tanks proposed for this float are four feet in diameter, three feet deep and twelve feet long. The displacement of each tank is nearly two tons on a draught of about eighteen inches. So with four or five of these tanks enough displacement will be obtained to easily float the heavy 2" floor and frame work and also care for all the people such a float will ever have aboard.

If four tanks are used spaced as shown, ten feet centers, the float will be 32' long or with five tanks 42' is obtained. If a greater length is required it would probably be better to construct two floats and couple them together.

The tops of these tanks are decked over with $\frac{3}{8}$ matched lumber to prevent rain from filling them. When this is done, two hatches should be left open for ventilation.

The tanks are constructed of 2" cypress, the ends are put in like the head of a barrel, and the hoops are $\frac{5}{8}$ round iron, galvanized, or bronze may be used. The nuts on the ends draw them up tight so the tanks need no caulking. An extra hoop is provided at each end. This goes through the main stringer and securely fastens the tanks to the frame. These tanks can be made in any cooper shop where this class of work is done. The rest of the material can be obtained of most any lumber yard and the plans show the method of construction.

The float will have a freeboard of from 2' to 2'6", which should be a convenient height for small launches. The sides and ends are planked down nearly to the water line, which not only protects the tanks but makes a side that will not injure the boats landing. It may be covered with a rope or old fire hose fender if desired.

CHAS. H. CHRISTIE,
Saginaw, Mich.

The Reliable Pile Construction.

THE diagram herewith shows a club dock and float which was constructed by the members with the help of a couple of laborers.

Spruce is generally used for the piling and the float stage. A number of cribs are laid out, the number depending upon the length of

the runway necessary to get proper depth at the float, but should not be spaced over 20 feet apart. These cribs are constructed by driving down four piles, which, when enclosed by nailing on a few planks, will form a hollow square with sides of about three feet. Fill these in with loose stones.

Across the piles, and about 8 inches from the top and at right angles to the line of the runway, securely spike 2-inch by 8-inch cleats on which the stringers are to rest. Where these stringers meet end on they should be cut with a scarf and bolted together, as shown in diagram. The bottom of these stringers should be about two feet above high water to prevent the ice, in winter, from carrying away the dock. This is also the reason for filling in the cribs with stone.

The hand-rail and stanchions should be about three feet high and should be securely bolted together and also bolted to the stringers.

The gangway is built similar to the dock, except that it should fit inside of the stringers with a one and one-half inch bolt or iron rod running through the stringers on which to work. The float end should have a pair of iron wheels, similar to those used on a hand truck, so that that end will work easily with the tide and swells. Nail on one-inch-square cleats about one foot apart to prevent slipping when walking up or down the gangway at low tide.

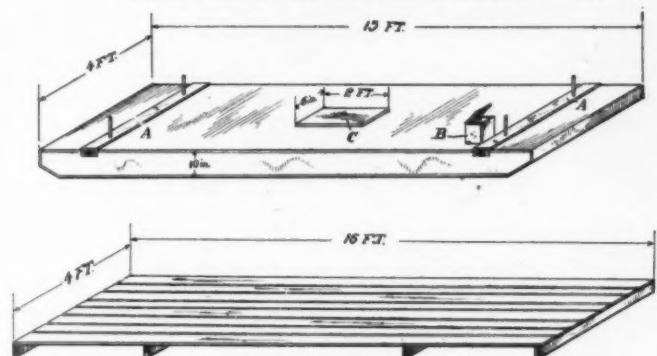
The float stage is most easily built of spruce logs or piles, laying out the size desired and using the largest logs for the bottom of the float the shortest way, laying them close together, but leaving out two logs where the four piles come. Across these lay the lighter logs, gridiron fashion, but not quite so close together, but which must be spiked to the bottom logs with long dock spikes, first boring with an auger a little smaller than the spikes so they will drive hard.

Across this gridiron spike 2-inch by 4-inch spruce joist, on which lay the floor, leaving the four holes for the piles large enough to give them free play. The floor boards on both the dock and the float should be laid about one inch apart.

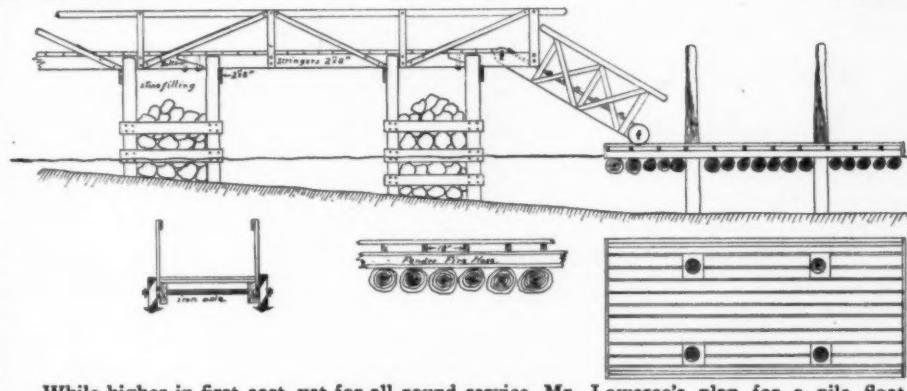
On the outer sides of the float put a narrow board with a two-inch space between that and the next floor board. This is a handy arrangement for making boats fast to, for then you will not need a lot of ring bolts on which to rip out the bottom of the dinghy.

The best method for settling in the anchoring piles is to get the float in position at high water and lash it to the four piles, and the weight of the float, as the tide falls, will settle them well down in the mud.

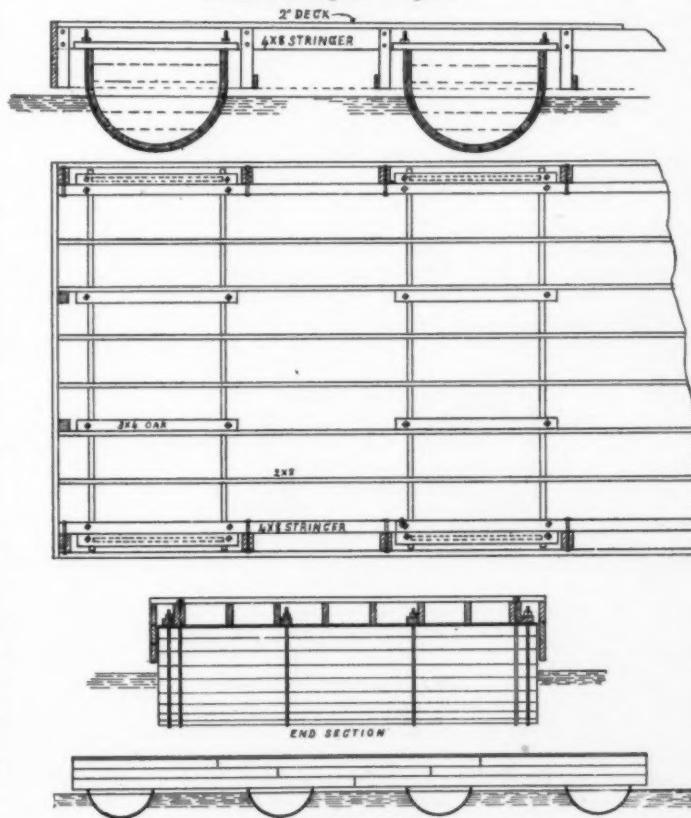
H. W. LOWEREE,
73 Maiden Lane, N. Y. C.



Mr. Marshall's float may be taken apart in the fall and stored in little space.



While higher in first cost, yet for all round service Mr. Loweree's plan for a pile float cannot be improved upon.



Mr. Christie supports his float by means of metal tanks.

Boring the Shaft Log.

Several Schemes for Accomplishing This Important Piece of Work Both Before and After the Boat is Planked.

THE PRIZE CONTEST—Answers to the Second Question in the January Issue.

Before or After the Boat is Planked.

(Prize Won—Ship's Clock from Durkee & Co.)

In Fig. 1, is shown the outline of the stern of a boat with the skeg and sheer line from the transom. It is presumed that the base line of the engine has been worked out or decided upon and that the engine bed has possibly been constructed and placed in position. In either event, construct a parallel rule by using a long straight edge B, and a short straight edge H, swung together by pivoted arms, E, F, and manipulated by a diagonal slat C, which is to be clamped with the screw

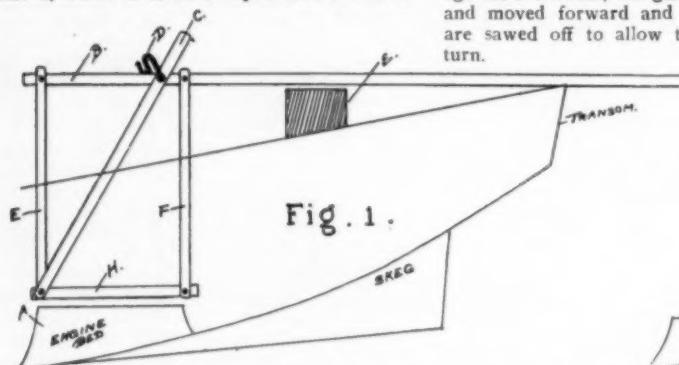


Fig. 1.

W. P. L. advises a parallel rule for transferring the shaft line from the engine bed to the after part of the shaft log.

clamp D, to hold the parallel rules B and H at a fixed distance when properly set. The long rule B, rests on the transom and upon a supporting block E, which is slipped along the deck until the proper angle is given the shaft rule H to be parallel with the engine bed.

When this angle has been fixed, the screw clamp D is set up and the block E is fastened in place on deck. The parallel rule is then lifted out and reversed as shown in Fig. 2, the end resting on block E, and the center resting on the transom as in Fig. 1. This gives an alignment to the lower part of the

2 x 4's have been properly lined up there is fitted to them a guide block consisting of two pieces (the drawing shows two in use, which is advisable), as shown in Fig. 3, the under piece having an offset to engage the two 2 x 4 timbers and to slide thereon forward toward the skeg. For this feature, the timbers are to be dressed and absolutely as parallel as a track. The guide block has a hole through the center thereof which is halved by the two blocks and is just the size of the auger stem so that it will turn freely but not loosely therein. This guide block is made fast to the 2 x 4's by screw clamps on each side. Upon the boring auger reaching a point where its handle would strike against the tracks, the guide block is loosened and moved forward and pieces of the track are sawed off to allow the auger handle to turn.

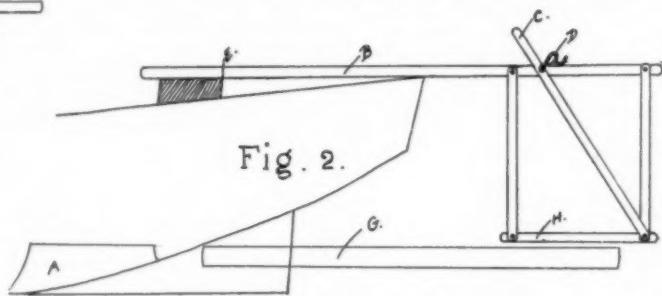
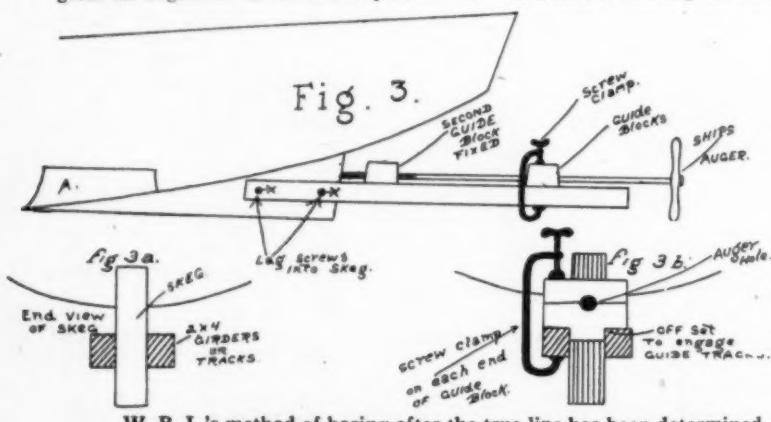


Fig. 2.

The auger to be used should be one without a worm or screw as the screw has a tendency to follow with the grain when wood is bored endwise and thereby causes the auger to veer off from the correct line. It sometimes happens that when boring the skeg, the auger will often encounter an iron bolt which has been driven into the skeg to hold its timber together, and this puts a stop to the boring proceedings. But to remedy the difficulty, draw out the auger and measure the distance on its stem from the end of the stern post to the obstruction, allowing for the thickness of the

making a shaft log is shown in the drawings. We built a four-inch by six-inch by seven-foot log like figure 2, which has been in use over a year now and has never leaked a drop and is as strong as a solid log. By this construction the hole can be made any size with equal ease, and it will be perfectly straight and smooth. The cutting can all be done at any lumber mill or wood-working shop. Get an oak timber the size required or else two timbers. If a single piece have it ripped down in half where the center of the hole is to come. Smooth off the edges so the two pieces will fit together



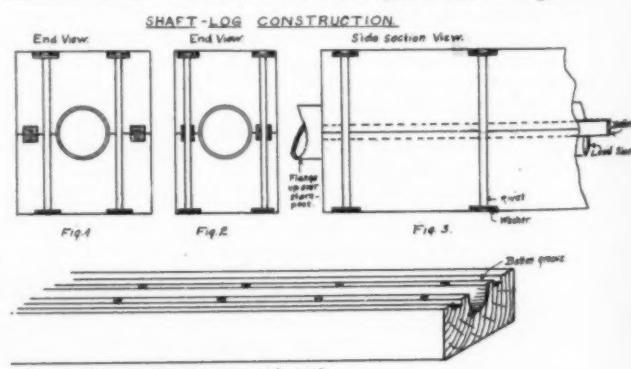
W. B. L.'s method of boring after the true line has been determined.

rule H, which represents the correct line of the shaft axis.

With the parallel rules in this position, two pieces of timber, preferably 2 x 4's, are fastened to the skeg by lag screws at x-x, one on each side of the skeg. These timbers should be absolutely parallel and it may require some liners under them at the lag screws to properly line them up, as very often the skeg of a boat tapers toward the stern post. When these

bolt, and bore a hole athwartship through the skeg forward of the bolt. This hole should be somewhat larger than the shaft hole so that you can insert a suitable saw above the proposed line of shaft and cut off the bolt at a point slightly above that line. It is then sawed off below the proposed line of shaft and the obstructing piece of metal removed.

W. P. L. Jr., Washington, D. C.



Mr. Parker recommends a built-up log bolted together with battens on each side of the shaft hole.

evenly. Then have each piece run through a shaper so that a half round groove is cut out of each and also have two small rectangular grooves cut so that when fitted together a small square batten made of soft wood can be laid in white lead to make a tight joint. This batten can be made very small, a quarter or three-eighths of an inch square will do. Each half of the log will now look like figure 4. If unable to have a half-round groove cut, a

The PRIZE-CONTEST

square hole for the shaft could be used, but a round hole is by far the best, as it allows the use of a lead sleeve. Allow for this sleeve in having the round groove cut. Also have two soft-wood battens made to fit the little grooves. Make of soft wood so that they will swell up tight.

Now take the pieces home; fill the small grooves and inside edges with white lead (or red lead); paint the inside of the shaft space; lay the small battens and clamp the two pieces together. Now bore holes for rivets as in figures 1, 2, 3, spacing the rivets 6 inches and 1 foot apart, according to the size of the timber. Rivet the two pieces together tightly, using galvanized rod and washers or copper or bronze rivets; countersink the heads as shown.

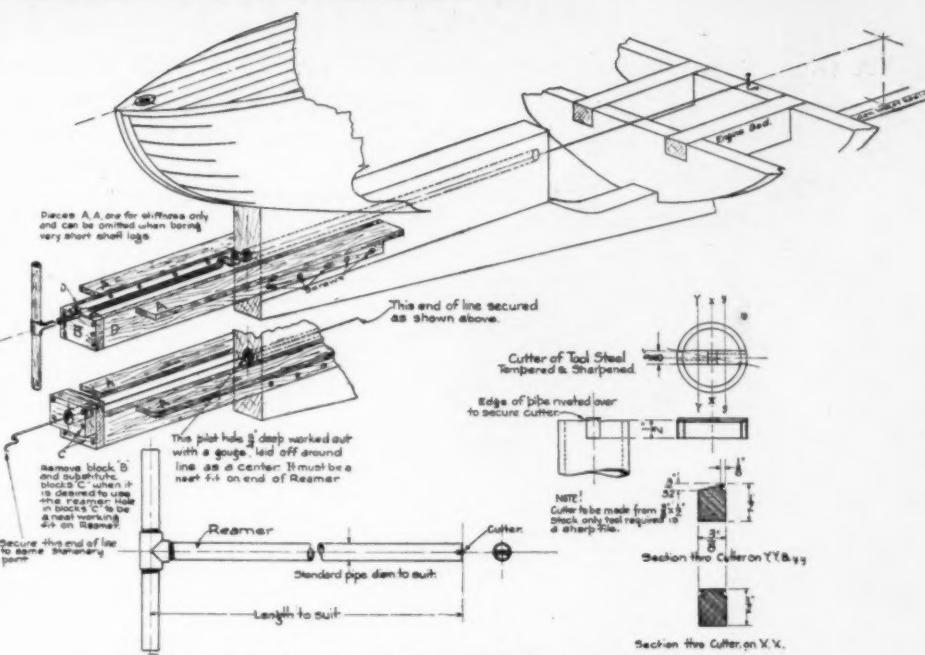
When the boat's frame is fastened together and the hole bored through stern post, swab paint or oil through the shaft hole. Then insert a lead pipe slightly smaller in diameter than the shaft hole. Make some wooden plugs of different sizes and tapering slightly and drive these through the lead sleeve, oiling them and using the smallest first. This will swell the pipe and, finally, it will be expanded tightly into the shaft hole. Flange over the ends and fasten with copper tacks and the shaft log is complete and will not leak.

H. H. PARKER, Oakland, Cal.

A Boring Jig.

THE conditions to be met in boring out a shaft log are: The bore shall be straight and must lie in the same vertical plane as the center line of boat; the inclination of hole to the horizontal is determined by the angle chosen for shaft or the general direction of shaft log. To meet the above conditions it will be necessary to construct a jig to guide the auger.

The sketch shows the manner of constructing such a jig. The material should be any wood on hand, and at least $\frac{3}{4}$ of an inch thick. The vertical side-pieces, *DD*, should have their upper edge planed true and placed fair with the center line scribed on either side of shaft log. Pieces *AA* and *DD* are to be well nailed or screwed together, and the jig to be fastened to shaft log with screws. The guide block, *B*, to be of oak at least 1 inch thick. Its upper edge has a semi-circular notch in line with hole to be bored. The notch has same diameter as shank of auger. A light metal strap or wooden block can be added to keep auger shank in bottom of notch. Lay off the vertical and horizontal center lines on after end of shaft log; start the auger at the intersection of the lines, and if it is started



Mr. Dewey's boring jig and reamer made from standard pipe fittings.

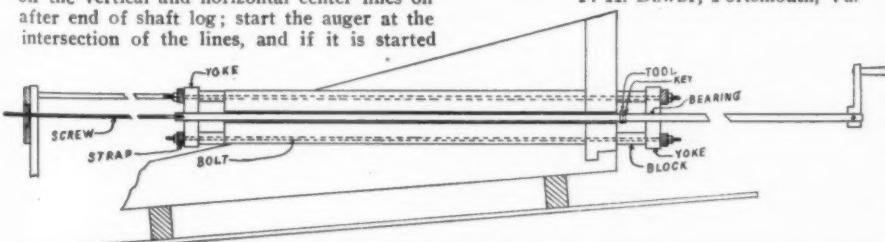
Easily Done Before Boat is Planked.

THE proper time for boring the shaft log is after the frame is completely erected and before the engine bed is fitted.

Having secured necessary dimensions determine the place where the engine will set. To do this saw off a piece of stock equal to half the diameter of the flywheel with 3" or 4" added for clearance. Nail lightly to the keel so the face nearest the bow will coincide with corresponding face of flywheel when the motor is in place you had planned for it as "A" Fig. 1, in sketch. Next determine a point at the extreme back end of the log that will give sufficient clearance for propeller when in place on end of shaft as shown in "B" Fig. 1. Stretch a piece of twine (tightly) from the board at "A" to the point "B" and mark this point carefully on both sides of log. Now mark carefully on both sides where the twine crosses the deadwood at front end as "C" Fig. 1.

Now plane two pieces of stock so upper and lower edges are true with each face. These should be pieces about $1'' \times 2\frac{1}{2}''$ with length to suit as "D" Fig. 2. Cut a piece $1'' \times 4'' \times 6''$ longer than the thickness of the deadwood as "E" Fig. 2. Plane upper edge true; from the center of length lay off half thickness of shaft log on each side as dimension at "X" in the sketch. At these two points cut slots $1''$ wide and $2\frac{1}{2}''$ deep from true edge or a nice sliding fit for strips "D" cut another piece ("F" Fig. 2) of some length and thickness as ("E" Fig. 2) with width $3''$, plane one edge true making a good joint with upper edge of "E". Place the true edges of the two pieces together and clamp tight; half way between outer edge of the two blocks and the slot in lower one drill a $\frac{1}{2}''$ hole through the two (at each end). These holes are for bolts of $\frac{1}{2}''$ diameter and $8''$ long which are forced through the holes and nuts screwed on tight. Then remove the clamp. While held together by the bolts bore a hole through the parting line exactly half way between the two slots. Take the two strips "D" and nail them fast to the shaft log, (one on each side) so the top edge of each comes line in line with marks first made at "B" and "C." Slide block "E" and "F" in place on strips "D" and slip the auger through the hole. Start the boring on a line with top edges of strips "D" at a point in the exact center of thickness of the shaft log. Fig. 3 shows the fixture in place.

C. E. BRADLEY, Fall River, Mass.



Mr. Christie makes a boring bar out of cold roll steel shafting, inserting near the center a tool and key. The feed screw draws the bar in, the nut being held stationary.

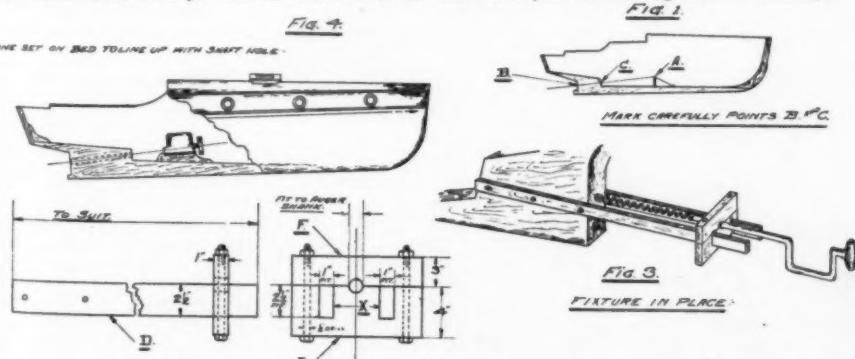


FIG. 2. — Method by which Mr. Bradley obtains the line and bores his shaft log.

The Storage Battery.

A Discussion of the Proper Care the Battery Should Receive While in Use and at Rest and During the Charging Process.

THE PRIZE CONTEST—Answers to the Third Question in the January Issue.

Very Efficient with Intelligent Care.

(Prize Won—Credit with R. L. Kenyon Co.)

THE ordinary lead storage battery that is used upon motor boats is generally sealed in an acid-proof retaining case. This makes it almost impossible to inspect the battery to ascertain its condition. However, if it is cared for intelligently, by following a few general rules laid down for its use, it will give efficient service for several years.

The apparatus is a very delicate one. It will do so much in a given time and no more; and any attempt to make it do more than stated by the manufacturer soon causes serious trouble. When a battery fails to deliver its usual amount of current, or loses its charge rapidly when idle, it is usually a sure sign that something is wrong. It should be sent back to its manufacturers for repairs.

In order to prevent disintegration and short-circuiting of the plates the battery should be installed so that it will be as free from jarring and vibration as possible. If electrolyte reaches any part of the hull it will destroy the wood. Therefore, in order to catch any acid that may be spilled, place sand beneath the battery, or else a lead tray, or a wooden tray that has been paraffined or painted with asphaltum. To prevent corrosion, all connections close to the battery should be either coated with vaseline or asphaltum paint. Positive and negative terminals of dynamo must be connected to positive and negative terminals of battery respectively, otherwise dynamo will discharge battery instead of charging it.

Dynamo must generate higher voltage than the battery, otherwise instead of dynamo charging battery, the battery will tend to run the dynamo as a motor. Measurements of voltage should always be taken when current is flowing; as E. M. F., taken on open circuit, has very little significance; for a battery, no matter how low it has been discharged, will show about 6 volts after standing on open circuit for a short time. Electrolyte must completely cover the plates and have a specific gravity of 1.3 as measured by hydrometer. Never allow acid to have a greater specific gravity, as it tends to produce sulphate, a whitish scale that forms on the plates and makes them partly inactive and incapable of being fully charged. It will often become necessary to add pure distilled water to overcome evaporation. If the electrolyte becomes spilled, then dilute sulphuric acid at a specific gravity of 1.3 must be added. It is always best to add acid when the battery is fully charged.

When charging, never exceed the maximum rate, as specified by the manufacturer.

In discharging, the maximum rate should be the same as for that of charging, but may be exceeded slightly without doing any harm to the cells. An excessive rate of charge or discharge is injurious to most types of cells, as it heats the electrolyte, causing buckling, disintegration, and eventually short-circuiting. When charging or discharging, the temperature of the electrolyte should never exceed 100° F. If the temperature rises above this amount, no doubt the rate is excessive, although heating may be caused by other things. Charging should be continued until battery is slightly overcharged, as overcharging tends to remove sulphate. The charging should then be stopped,

as any more energy passed through the battery is simply wasted in producing heat and excessive gas bubbles, and may cause disintegration. A full charge is indicated when the voltage and specific gravity of the electrolyte show no further increase for from three to four hours when charging at normal rate. When fully charged, the E. M. F. on a six-volt battery will be from 7½ to 7¾ volts. Bubbles of gas will be freely given off when battery is fully charged.

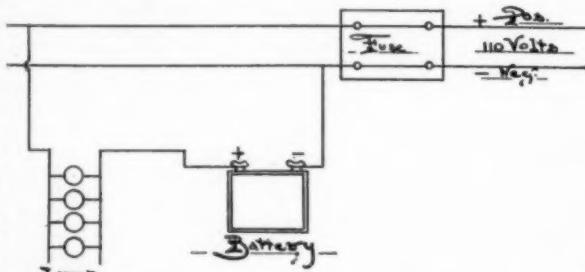
When discharging the battery, the E. M. F. soon falls from 7.5 to 6 volts and remains thus during the greater part of the discharge. Then it rapidly falls to 5.4 or 5.1. In all cases the battery should be considered as exhausted when the latter voltage has been reached. If carried below this point, serious damage is likely to result in the way of sulphating and buckling. Moreover, the E. M. F. falls so rapidly at the end of discharge that the current would be of no practical value. Battery should be charged immediately after lowest point of discharge has been reached, or sulphating will result.

At Rest. A storage battery is at its best when in constant use and no amount of intelligent use will cause it to deteriorate so much as idleness; that is, unless it is prepared for this idleness. Particular attention must be given to preparing for the long winter rest, or the results in the spring will be far from satisfactory.

To prepare the battery for its winter rest, first give it a complete charge at normal rate. Then syphon off the electrolyte into carefully cleaned acid-proof receptacles, for this electrolyte can be used again. After each cell is emptied of its acid, immediately refill it with

Charging from Electric Light Mains.

THE difference between the storage battery and the primary cell or battery is that in the latter the parts have to be renewed when the battery has run down, while in the storage type a reverse current from some convenient source is all that is required for complete recuperation. This reverse or charging current brings the electrodes back into a state of sponge lead and lead peroxide, and the battery is again ready for operation. Thus, it is seen that the action that takes place is not the actual storage of electricity, but the mere conversion of lead sulphate to lead peroxide at the one pole or electrode, and to sponge lead at the other, which substances give out a reverse or discharge current when desired. The lead peroxide is the positive electrode and the one supplying current to the line. The Edison Storage Battery, that has recently appeared on the market, uses nickel oxide and iron for electrodes instead of substances just mentioned. When charging always remove the vent plugs on the top of the battery. Connect to a direct current only, with an ammeter in circuit to show the amount of current passing, or, if an ammeter is not available, connect to 110-volt direct current with a group of incandescent lamps between current and battery. The diagram shows a simple arrangement of this method. The lamps take the place of an ammeter and the proper amount of current flowing being proportionate to the number of lamps in circuit. Each 16-c.p. lamp will permit about one-half ampere to flow and each 32-c.p. about 1 ampere. The following is a list which has been found very successful:



W. E. J.'s wiring scheme for charging the battery from direct current lighting mains.

pure water, otherwise the charged negative plate will heat, causing a loss in capacity. When the water has replaced the acid in all the cells, begin discharging the battery at its normal rate and continue until voltage falls to about 1 volt per cell, which will be about 3 volts on a six-volt battery. When this point has been reached the water should be drawn off, in which condition the battery may stand without further attention until it is to be put into service again. If, during discharge, the battery shows a tendency to heat above 100° F. add cold water.

When putting battery into commission, first fill cells with electrolyte, completely covering the plates and begin charging immediately. If the battery has been out of commission some time the first charge should be at a rate lower than normal that will not cause the temperature of the solution to rise above 100° F., but, in all other respects, it is the same as for ordinary charging. In case it is necessary to use new electrolyte chemically pure, diluted sulphuric acid is used at a specific gravity of 1.3. ROBT. H. KREWSON, Philadelphia, Pa.

TABLE SHOWING NUMBER OF LAMPS USED WHEN CHARGING STORAGE BATTERIES OF VARIOUS CAPACITIES.

CAPACITY OF BATTERY	CHARGE RATE	NO. OF 16-C.P. LAMPS
30 Amp. Hrs.	2½ Amp.	5
60 "	5 "	10
80 "	7 "	14
20 "	3½ "	7
55 "	5 "	10
105 "	9 "	18
130 "	11 "	22

In making charging connections be sure that the positive wire is connected to the positive battery terminal and the negative wire to the negative battery terminal. The minimum charge at the normal rate is about 10 hours; if one-half normal rate is used the duration of charge will be double, and the minimum will be about 20 hours. Before starting to charge be sure that the solution covers the plates; if not, add pure water (preferably distilled). The voltage of the battery, and the specific gravity of the acid increases while charged, so that when the battery is fully charged the acid should be adjusted to the proper height (about $\frac{1}{4}$ " above the plates) and to specific gravity, 1.300. A syringe hydrometer is a valuable instrument for this purpose. If gravity of acids is above 1.300 add distilled water, and if below add a little sulphuric acid of 1.320 specific gravity. It is seldom necessary to add acid and should only be done by an experienced operator. The charge should be continued until the voltage of the specific gravity of the acid shows no further rise for three or four hours, while charging at the normal rate. The temperature of the cell, while charging should never exceed 100 deg. Fahrenheit.

W. E. J., Philadelphia.

20-Ft. V-Bottom Runabout.

Trying Out MoToR BoatinG's



intends installing a 40 h.p. motor in her, but the only thing available for the try-out was a 5 h.p. single cylinder motor with which she made the excellent speed of 11 $\frac{1}{4}$ miles per hour.

Mr. Frederick K. Lord, who wrote the article on How to Build a Fast V-Bottom Runabout, which appeared in the May and June issues of MoToR BoatinG for 1912, has had a boat built to this design, which has proved a remarkable little craft. Mr. Lord



Diesel Progress UpTo Date

The Great Strides that Have Been Made with the New Type of Power Pant in England and on the Continent. The Diesel Yachts and Other Craft Now Under Construction.

ALTHOUGH the high-powered Diesel engine, as applied to marine work, is still regarded with considerable doubt in the United States it has now become an accepted type among British and Continental ship-owners, and the past year has been notable for remarkable developments. The great scepticism that existed eighteen months ago has practically become reversed, and it is now recognized that it is only a question of time before ships of the largest size will be driven by motor power, in fact an engine of 6,000 H. P. is already running on the test bed, but this is for naval purposes. It seems very curious that Americans are requiring so much proof, especially as residual oil fuel in the States is less than one-fourth of its cost in England.

It has, however, taken actual performances to convince ship-owners that the big marine oil engine has arrived not only to stay, but come to gradually supersede steam. There cannot be any doubt but that it is distinctly a retrograde step to place an order for a steam-driven vessel of under 10,000 tons unless under special circumstances such as the question of obtaining delivery within a certain period. The last feature is in a way unfortunate, as some of the firms who are capable of turning out a large motor ship as rapidly as a steamship are too fully occupied to accept further orders for the time being. Messrs Burmeister & Wain alone, to give one instance, have eight ships on order, aggregating 66,500 tons dead-weight, to be fitted with Diesel machinery of 20,600 indicated horse-power, details of which will be given presently, and in addition have completed two of 7,500 tons D. W. C. and 2,500 B. H. P. Thus many willing and prospective owners are debarred from the new power for a short time.

power for a short time.

The question of reliability has also been a sore point with many. When a large steamship is first launched minor troubles are taken as granted, although experience with them covers half a century, but if a Diesel engine (which is virtually a new machine) happens not to run absolute faultlessly straight away there is a great outcry among the opposition and most is made of what may probably be due to a slight defect in the auxiliary machinery and not the main engines at all. As I write the M. S. Selandia has covered over 40,000 miles without any trouble whatever, despite rumours to the contrary that have been spread about. During 1912 four large full-powered motor ships, the Calgary, Eastview, Monte Penedo and Christian X, crossed the Atlantic, while the Selandia and Jutlandia have been working the far East service. Several more including the Emmanuel Nobel and Rolandseck have carried out their trials. The

By J. Rendell Wilson.

Within a year the Diesel motor abroad has become an institution. The large motor craft that several months ago were looked upon with not a little skepticism, have since proved the practicability of their new power plants and at present literally dozens of British and Continental concerns are turning out two and four cycle motors of the Diesel type. Mr. Wilson has carefully reviewed the Diesel situation abroad and his article would indicate that since the days of Robert Fulton, we have become a more conservative nation in one line at least than our cousin, John Bull, and also that many of our prominent ship builders are from the great state of Missouri.—Editor.

following list will give an idea of the number of firms interested in the construction of marine Diesel engines:

Firm.	Town.	Stroke.	Design.
Armstrong Whitworth & Co., Ltd.	Newcastle	2	M. A. N.
Babcock & Wilcox, Co.	London	2	M. A. N.
Bacchus & Carle	Glasgow	4	B. & W.
Beardmore Bros.	Dalmuir	2	
Burmeister & Wain Oil Engine Co.	Glasgow	4	B. & W.
Clyde Shipbuilding & Eng. Co.	Port Glasgow	2	Carels
Cammell Laird & Co.			
Consolidated Diesel Engine Mfrs.	Ipswich	2	Carels
Diesel Engine Co.	London	2	Carels
Doxford & Co.	Sunderland	2	Doxford
Fairfield Ship & Eng. Co.	Glasgow	2	M. A. N.
Harland & Wolff, Bickerston & Day	Belfast	4	B. & W.
Mirrlees, Palmer's, Hunter & Wigham Richardson	Stockport	-	(Land)
Iron Co.	Hebburn on Tyne	2	Carels
North Eastern Marine Engg. Co.	Wallsend on Tyne	4	Werkspoor
Scotts Shipbuilding Co., Ltd.	Greenock	2	F. I. A. T.
Swan, Hunter & Wigham Richardson	Newcastle	2	Polar
Stephen Sons & Co.	Glasgow	2	Carels
Thornycroft & Co.	Southampton	4 & 2	Diesel Co.
Tyne Iron & Shipbuilding Co.	Newcastle	4	Werkspoor
Samuel White & Co.	Cowes	2	M. A. N.
Workman Clark & Co.	Belfast	2	Tanner
WallSEND Shipway & Engineering Co.	Wallsend	2	M. A. N.
Richardsons Westgarth	Middlesbrough	2	Carels
Yarrow & Co.	Glasgow	2	M. A. N.
Vickers, Ltd.	Barrow	2	Carels
Germany.			
Benz & Cie.	Mannheim	2	Polar
Blohm & Voss	Hamburg	2	M. A. N.
Freibrichs & Co.	Osterholz	2	Junkers
Maschinenfabrik Augsburg Nürnberg	Nurnburg	2	M. A. N.
Körting Bros.	Hanover	-	Körting
Fried Krupp	Kiel-Gaarden	2 & 4	Krupp
Reichenberger Co.	Hamburg	2	Carels
Tecklenborg Co.	Bremervagen	2	Carels
Professor Junkers	Aachen	2	Junkers
Waggon G.	Bremen	2	Junkers

Italy.			
Fiat Co.....	Turin	2	F. I. A. T.
Ing Paolo Kind..	Turin	2	Kind
Fronco Tosi	Turin	4	Tosi
Savoia Engineering Co.	Savoia	2	Savoia
France.			
Augustin Normand	Harve	4	Bochet
Schneider & Co... Ateliers de La Loire	Crueset	2	Carels
Societe des Mote- urs Sabaté.....	Paris		Loire
	St. Etienne	4	Sabaté
Belgium.			
Carels Freres....	Ghent	2	Carels
J. Cockerill.....	Seraing	2	Cockerill & Dr. Diesel
Holland.			

Werkspoor Co.....	Amsterdam	4	Werkspoor
Schmulders	Amsterdam	2	Schmulders
Denmark.			
Burmeister & Wein	Copenhagen	4	B. & W.
Kramper & Jorgensen	Horsens	2	Gideon
Russia.			
Kolomnaer Co.....	Golutwin	4	Kolomnaer

Ludwig Nobel	St. Petersburg	4	Nobel
America.			
Busch Sulzer Co....	St. Louis	2	Sulzer and
New London Ship & Engine Co.	Groton	2	Dr. Diesel M. A. N.
Switzerland.			
Sulzer Bros.....	Winterthur	2	Sulzer
Sweden.			
A. B. Diesels Mo-			

As before mentioned the past year has been one of remarkable activity. The following list shows the most notable motor-ships launched, outside of Russia. The latter country probably launched as many Diesel engined vessels as the other countries put together. Curiously enough all the Russian built engines are of the four-stroke type whereas it will be noticed that nearly all the Western European firms are constructing two-stroke engines.

Motor Ships Launched During 1912.				
Name.	D. W. C. Tonnage	Engine.	(B.H.B.)	Power
Rolandseck	2,700	Techlenborg-Carels	1,500	
Juno	2,675	Werkspoor	1,110	
Galgary	2,500	Polar	520	
Fordeman	4,000	Cast & Clyde S. B. Co.	750	
Selandia	7,500	Burmeister & Wain	2,500	
Christian X.	7,500	Burmeister & Wain	2,500	
Suecia	6,550	Burmeister & Wain	2,000	
Jutlandia	7,500	Barclay Curle, B. & W.	2,500	
Monte Penedo	6,500	Sulzer	1,700	
Eavestone	3,100	Westgarth-Carels	850	
Emanuel Nobel	6,230	Werkspoor	2,220	
German Oil Co.'s Tanker	7,700	Krupp	2,300	
Excelsior	7,500	Reicherstieg-Carels	1,800	
Standard Oil Co.'s Tanker	1,500	Niseco-M. A. N.	300	

Thus for 1912 we have a total tonnage of 72,555 with a brake-horsepower of 22,550 apart from Russia which may be considered to be excellent. In addition to these quite a

number of Diesel craft under 1,000 tons have been put into service, also a host of semi-Diesel-engined coasters, auxiliaries, and lighters, which all tend to indicate the direction that ship-owners are taking. Unfortunately I am unable to find space for a complete list of the motor craft built this year in Russia, although I may say that the Caucasus and Mercury Co., have had four 14-knot, 645 ton motor ships for mail and passenger service, each equipped with Kolonnaer Diesel motors developing 1,200 H. P. Again one order alone for sixteen marine reversing Diesel engines each of 1,350 B. H. P. has been received from the Russian Admiralty by the Maschinenfabrik Ludwig Nobel. This is the largest single order of its kind ever placed with any firm. Mr. Ludwig Nobel also advises me that the Admiralty have put two 600 B. H. P. Nobel Diesels into the old 3,000 ton cruiser Ruenda as an experiment. This vessel is quite different to the new Revenue motor cruisers built at Nicolaieff. The two engines of Ruenda each ran a five days non-stop trial before being taken over by the Admiralty.

From the Kolonnaer Co., of Golutwin, I have received a most formidable list of marine Diesel engines built, or building by them during 1912. In all there are 38 engines having a total horsepower of 13,160 B. H. P., and which will be installed in 16 vessels, having a total displacement tonnage of 9,995 tons. In addition there is auxiliary machinery to the tune of eleven engines, aggregating 390 B. H. P. The largest vessel is the Emanuel Nobel, which makes the *third* motor ship of this name. She is 380 ft. long, 46 ft. beam, 25 ft. moulded depth, and 15½ ft. loaded draught, on a dead-weight capacity of 2,260 tons. Her engines are two six-cylinder Kolonnaer Diesels each of 750 B. H. P. If these figures are added to the European total, we get a grand total of 40,000 H. P. constructed during 1912.

Let us now turn to what the principal firms have done, and the engines for ships that they have in hand. Outside of Russia, the firm with the most experience numerically with marine installations is undoubtedly the Aktiebolaget Diesels Motorer of Stockholm, makers of the Polar motor. As long ago as 1904 they supplied three 120-H. P. oil engines for the triple-screw tanker Vandal to the Nobel Bros. Naphtha Productions Co., of St. Petersburg, which was the first Diesel ship afloat, if we omit the 50-H. P. barge Le Petit Pierre built in France the previous year. Other motor vessels which they have engined are the Taurus, 110 H. P.; Fram, 180 H. P.; Hebe, 100 H. P.; Zagreb, 180 H. P.; Sound of Jura, 260 H. P.; G. D. I., 200 H. P.; C. O. J., 200 H. P.; Toiler, 360 H. P.; Calgary, 520 H. P.; Livahtos, 200 H. P.; Telegraaf X V I, 120 H. P.; Schonlind, 260 H. P.; Orion, 60 H. P.;

Rindo, 120 H. P.; Jakut, 320 H. P.; St. Elba, 200 H. P.; and a 260-H. P. marine engine for the Ljusne-Woxne Aktiebolag; also ten engines for submarines varying from 200 H. P. to 500 H. P. Truly a remarkable list, although not of high powers. But the firm have in hand two 1,000 B. H. P. Diesel engines to be installed in a vessel, the Sebastian, building for Messrs Lane & Macandrew, a high-powered double-acting engine as an experiment, a 120 H. P. engine for Hoogezand, two 100 H. P. engines for the Japanese Navy, a 400 H. P. engine for the Antwerp-Ostend Passenger Ship Co., one of 260 H. P., for Karlskrona, a 60 H. P. set for the Tromos Steamship Co., of Tromos and two 260 H. P. engines for a yacht for Mr. Paris Singer.

It is the general opinion that the two-stroke type of Diesel will be the engine of the future. This may be so eventually, but the only indication of this at present is the large number

of firms that are adopting the construction of this class. Russia is practically devoted to the four-stroke engine, so the experience of her marine engineers must be considered important, while two firms also with considerable experience, namely, Messrs. Burmeister & Wain of Copenhagen, and the Nederlands Fabriek Werkspoor, of Amsterdam, have between them four-stroke type engines totaling 35,000 B. H. P., now under construction to be installed in ships aggregating 97,685 tons, apart from naval craft; and the Selandia, Jutlandia and Christian X, built to the designs of the former firm, are still as high-powered as any motor craft afloat, and higher powered than any in actual service.

Regarding the motor vessels in hand at Burmeister & Wain's yard, they are as follows: Four ships each of 6,500 tons D. W. C., for the Rederiaktielbolaget Nordstjerman, of Stockholm, to be fitted with two motors of 1,000 H. P., each. The length of these vessels is 362 ft., beam 51 ft. 3 in., moulded depth 25 ft. 6 ins. Suecia, the first of these, was launched on the 2nd of November last. For the East Asiatic Co., they have building two of 9,000 tons D. W. C., to be fitted with Diesels of a total horsepower of 3,000, length 410 ft., beam 55 ft., moulded depth 30 ft. 6 ins.

On November 22nd last the same owners gave Messrs. Burmeister & Wain an order for the highest-powered motor-ship yet placed with any firm. She is to be of 7,600 tons D. W. C., and will be driven by four-stroke Diesels of 4,000 H. P. Her length will be 400 ft. Lastly there is a 7,600-ton vessel of 2,600 H. P. for the Det Fornenede Dampskeboelskab, of Copenhagen. Length 405 ft., beam 54 ft., moulded depth 34 ft.

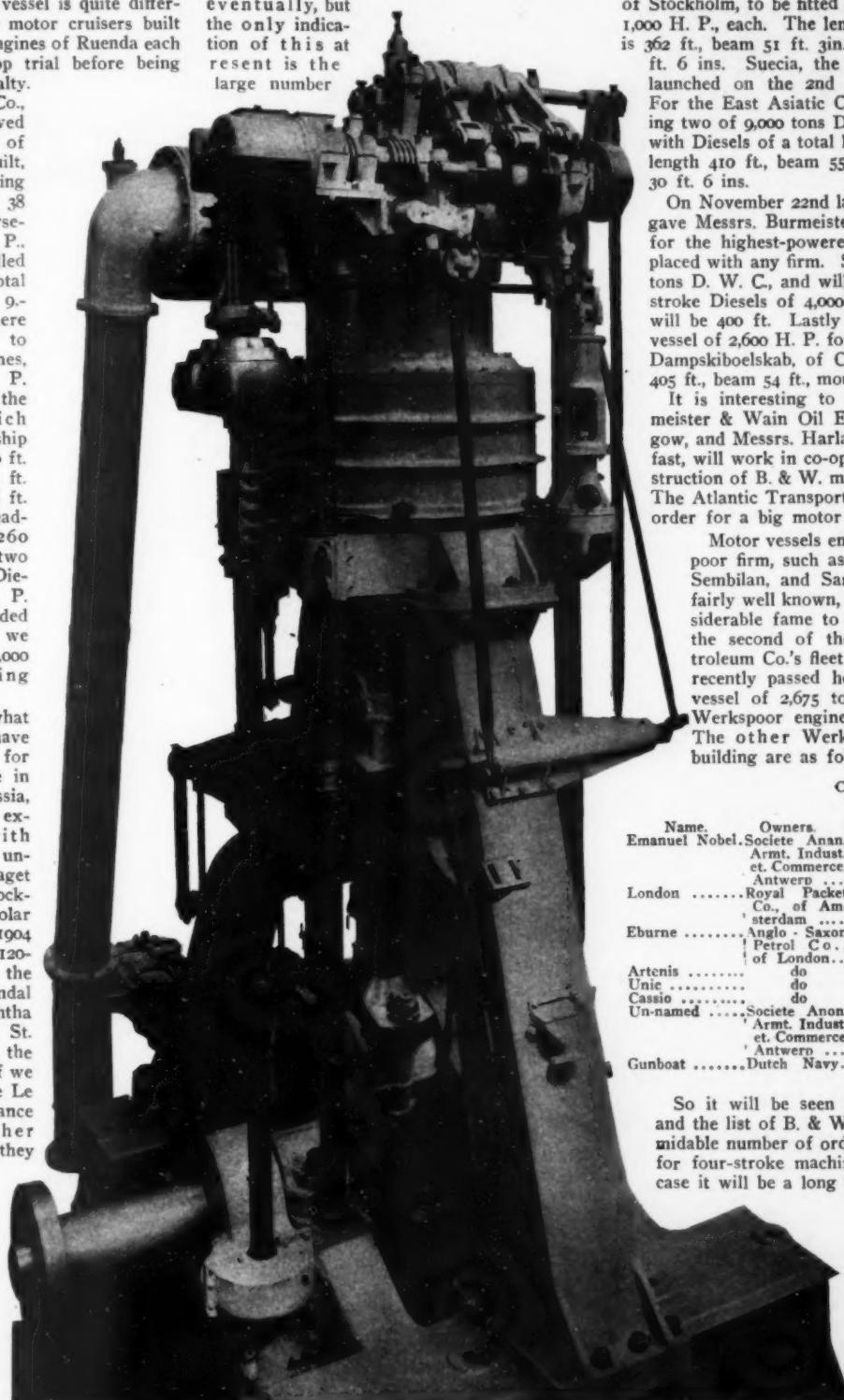
It is interesting to note that the Burmeister & Wain Oil Engine Co., of Glasgow, and Messrs. Harland & Wolff, of Belfast, will work in co-operation for the construction of B. & W. marine Diesel engines. The Atlantic Transport Line has placed an order for a big motor vessel with them.

Motor vessels engined by the Werkspoor firm, such as Vulcanus, Cornelis, Sembilan, and San Antonio, are now fairly well known, having brought considerable fame to these works. Juno, the second of the Anglo-Saxon Petroleum Co.'s fleet of Diesel craft, has recently passed her trials. She is a vessel of 2,675 tons D. W. C., with Werkspoor engine of 1,100 B. H. P. The other Werkspoor-engined ships building are as follows:

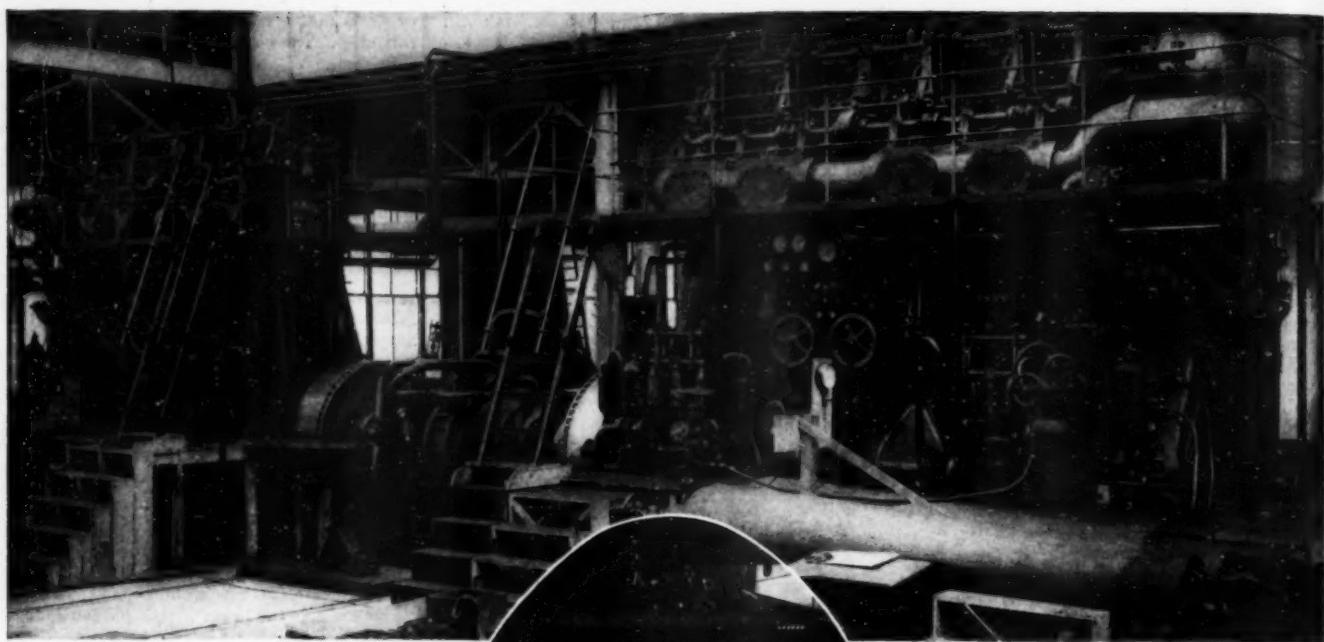
Name.	Owners.	Capacity D. W. in Tons.	Brake H.P.	Len. Bm. in Ft. Ft.	
				390	51
Emanuel Nobel	Societe Anon. Armt. Indust. et Commerce, Antwerp	6,230	2,220	390	51
London	Royal Packet Co., of Am- sterdam	1,750	1,100	278	41
Eburne	Anglo - Saxon Petrol Co., of London	5,050	1,700	345	46
Artemis	do	5,050	1,700	345	46
Unie	do	5,050	1,700	345	46
Cassio	do	5,050	1,700	345	46
Un-named	Societe Anon. Armt. Indust. et Commerce, Antwerp	6,230	2,220	390	51
Gunboat	Dutch Navy	1,100

So it will be seen from the above list and the list of B. & W. engines that a formidable number of orders have been placed for four-stroke machinery, so that in any case it will be a long time before the two-stroke engine leads the way.

We now come to a firm, Messrs. Sulzer Bros., of Winterthur, who are steadfast believers in the two-stroke principle, and well they may be, for they have supplied no fewer than forty-five



The 250-h.p. single cylinder Duxford-Diesel motor. The Duxford is the only motor built in the British Isles that is actually of British design.



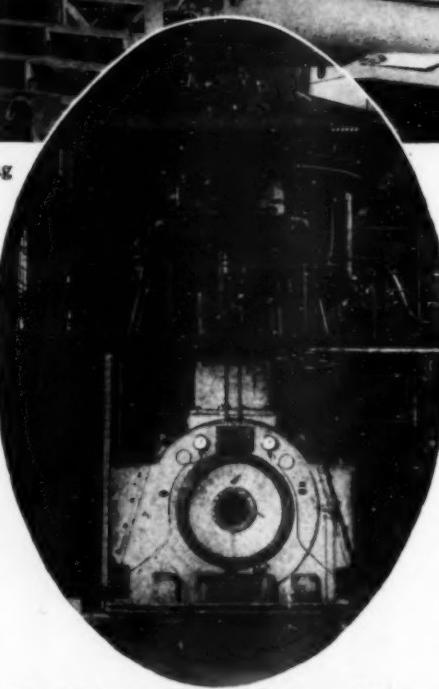
Two Sulzer-Diesel marine engines undergoing

marine two-cycle type Diesel engines. They already have on test a single-cylinder of 2,000 B. H. P. Of engines that they have on hand I have no record, but it will be remembered that the most recent ship to be equipped with their machinery is the 6,500 tonner, Monte Penedo, for the Hamburg-South American Line, which has two 800 H. P. Sulzer oil engines. Among other Sulzer engined craft may be mentioned the Elbe lightship, the Romagna, Venage, Fortschrift, and the yacht Lady Evelyn, which was fitted with one of 400 H. P.

Messrs J. Frerichs & Co., of Osterholz-Scharbeck, who have taken up the construction of the Junkers single-acting two-stroke Diesel engine have six motor vessels building. One is a tank ship, 387 ft. long, and 11,000 tons displacement for the Petroleum Steamship co. of London. She will have two four cylinder engines each of 1,200 B. H. P. Another vessel, also a tanker, will be 295 ft. long, and of 6,400 tons displacement. In this case two 1,000 I. H. P. oil engines will be installed. Two of the other vessels, one a passenger boat will have 200 H. P. engines and the remaining two are having motors of 130 H. P. fitted.

The Weser Co., of Bremen, have also taken up the Junkers patent, but the "tandem," or double-acting design. Their most important job is two 800 B. H. P. engines for a ship for the Hamburg-American Line, the present owners of Christian X. The F. I. A. T. Co., and Franco Tosi, are building between them five large Diesel engined tank ships for the Italian Navy.

As is now fairly well known Messrs Fried Krupp A. G., of Kiel-Gaarden, have obtained as much as 2,750 B. H. P., from a single-cylinder engine of their own design. In addition to having completed a very big engine for naval purposes, the divers ship Mentor, and a large number of Diesel driven submarines, this firm have three large motor tankers on hand for the German-American Petroleum Co., of Hamburg, the first of which was launched in November last. One is a 525 ft. ship of 14,000 tons D. W. C., and is to be driven by motors of 3,500 total horse-power. The other two are 400 ft. long, of 7,200 tons D. W. C. each with two engines of 1,150 B. H. P. each. The first mentioned of the three is the largest motor ship yet ordered, although not the highest powered. For Messrs. G. M. Bryden & Co., of Christiania, Messrs. Krupp are supplying for a cargo ship an engine of 1,850 B. H. P. and an engine of 250 B. H. P. For the Dutch Navy they are building a Diesel gunboat of 1,200 B. H. P. while for Mr. E. Rossing-Bergh, of Bergen, they are turning out



An 1800-h.p. Reiherstieg-Carels engine for a tank ship of the German-American Petroleum Company.

an engine of 400 B. H. P. destined for cargo ship. They are also building a large number of Diesels for submarines.

An important firm in the Diesel world is the Usines Carels Freres of Ghent, as they are responsible for much of the ground work. They partially constructed the engines of Excelsior, Eavestone, Fordonian and Rolandseck. At the Ghent 1913 Exhibition they will be showing a marine engine of 1,500 H. P.

The Reiherstieg Co., of Hamburg, have completed the 1,800 B. H. P. Carels type engine for the steam ship Excelsior owned by the German-American Petroleum Co., Messrs. Joh. C. Tecklenborg, A. B., of Bremerhaven-Geestamunde, recently launched the 2,700 tons D. W. C. motor ship Rolandseck for which they also constructed the 1,500 H. P. Diesel engine.

Messrs. John Cockerill have several motor craft in hand, also a 3,000 and a 4,000 H. P. engine building. One of the vessels is for the Congo River service, and will have a speed of 18 knots. She is a 500 ton ship, 220 ft. long, and her engines will be two Cockerill-Diesels each developing 640 H. P. at 280 R. P. M., but driving the propellers through Fottinger transformers.

In America, the New London Ship & Engine Co., of Groton appear to be the only firm to have turned out any marine engines. They have fitted one of 300 H. P. in a 1,500 ton tanker owned by the Standard Oil Co., a number of submarine motors, and one of 150 H. P. in the private yacht Idealia. Among

the hydraulic brake test at the factory.

the orders on hand is a submarine tender to have an 800 H. P. Nlesco-Diesel engine.

We now come to the British engineering firms. Messrs. Barclay Curle & Co., have the honor of having turned out the largest motor ship, Jutlandia owned by the East Asiatic Co. They are also said to be at work on a larger Diesel vessel for the same owners. Messrs. Wm. Doxford & Sons of Sunderland are the only British firm to have constructed and tested a successful marine Diesel engine of as much as 250 H. P. from their own designs, instead of buying Continental experience. Messrs. J. J. Thornycroft & Co., are building under license from the Diesel Engine Co., of London and are constructing the 200 H. P. Diesel engines for Senor Leloir's yacht Atair, and for the auxiliary trading vessel Netherton. They are building a large Diesel yacht for the Grand Duke Cyril of Russia, and are installing a 1,000 H. P. motor in the Destroyer Hardy in conjunction with turbines. As is well-known, Messrs. Richardsons, Westgarth & Co., built the 850 H. P. Carels type engine of the 3,100 ton ship Eavestone with Carels.

Palmers Shipbuilding and Iron Co., of Hebburn, are building a tanker of 5,050 tons D. W. C. for the Anglo-Saxon Petroleum Co., which will have Werkspoor type Diesels of 1,700 total horsepower.

Messrs. J. Samuel White & Co., of Cowes, have completed couple of 300 H. P. Diesel engined Vedette boats for the British Admiralty, and have on hand, also for the Admiralty a 2,000 tons D. W. C. tanker, to have Diesels of 1,500 H. P. Messrs. Vickers Ltd., the Fairfield Shipbuilding and Engineering Co., and Scotts Shipbuilding & Engineering Co., have Diesel driven tank ships and submarines on hand for the Admiralty.

It is fairly common knowledge that Messrs Swan, Hunter and Wigham Richardson Ltd., of Newcastle have fitted two ships, the Toiler and Calgary with Polar-Diesel engines, while they have a 400 H. P. Diesel engine of this design built by themselves nearly ready for testing. They have on order two cargo motor ships, of 5,500 ton D. W. C. each to have Diesel engines of 1,200 B. H. P. and which will be constructed in their own works. They are also building the hull of a ship, for the Great Lakes, that will have Mirrlees, Bickerton & Day land-type Diesel engine and Mavor-Coulson electrical gear. The D. W. C. will be 2,500 tons and the engines two of 300 h.p.

Messrs Yarrow, have built and are testing a 300 H. P. two-cycle type six-cylinder marine Diesel of M. A. N. design, which promises to be very satisfactory. It is their intention to develop the light-type oil engine for naval purposes and shallow draught commercial craft.



A 60-Footer of the Steamship Type.

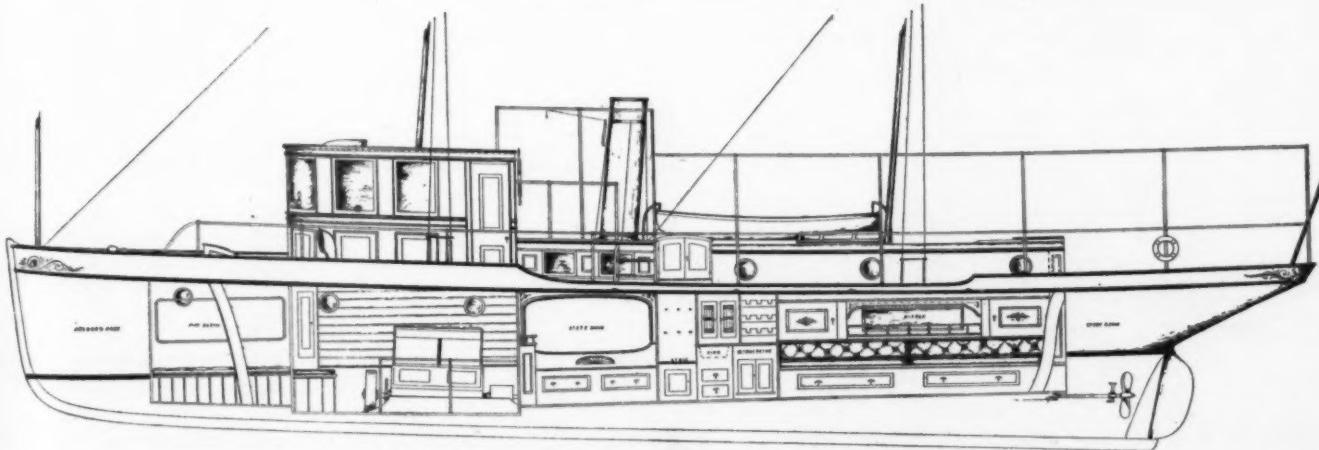
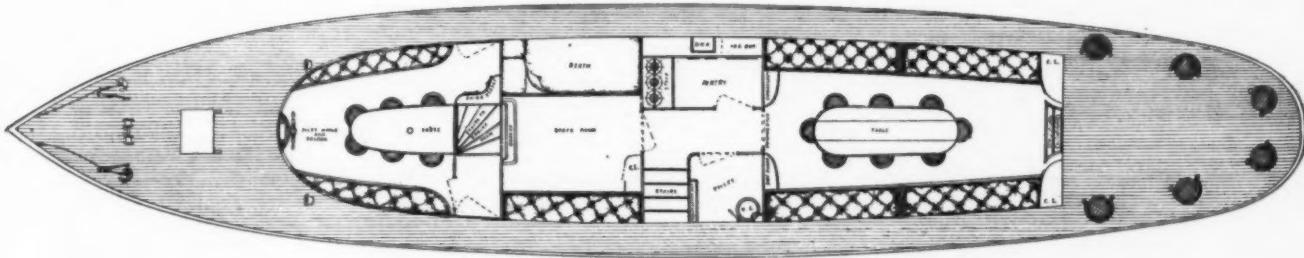
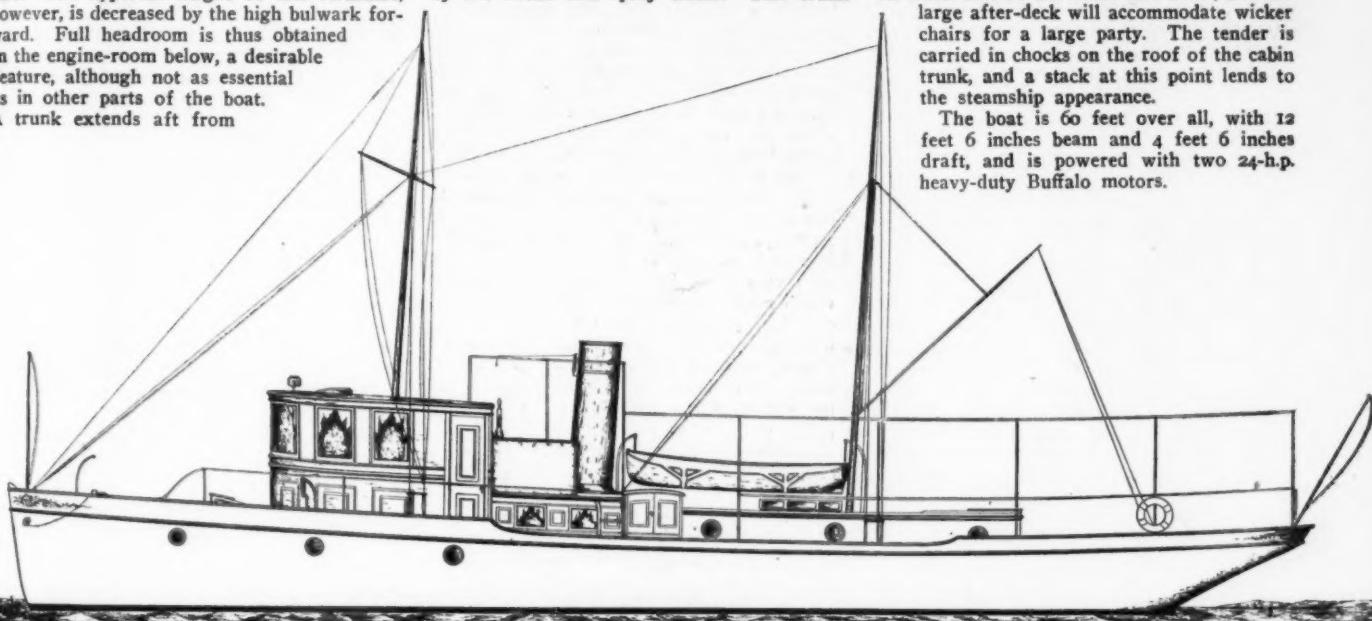
THE twin-screw 60-footer, the design of which appears below, was built last fall by L. A. Coombs, of Belfast, Me., for Mr. E. A. Adams, Vice-Commodore of the Bangor Yacht Club. The boat is of the steamship type, with a full height deck-house forward, which is rather unusual in a boat of this size. The apparent height of this structure, however, is decreased by the high bulwark forward. Full headroom is thus obtained in the engine-room below, a desirable feature, although not as essential as in other parts of the boat. A trunk extends aft from

Designed and Built by L. A. Combs for Mr. E. R. Adams of the Bangor Yacht Club.

the deck-house and the forward part of it is used as a bridge-deck, which is well protected by the house and spray cloths. This trunk

covers the living quarters, which consist of a large stateroom forward and an exceptionally large saloon aft, so large in fact that each transom will sleep two people end on. Between these two compartments are a galley to starboard and a toilet-room and the companionway to port. There is ample deck space on either side of the house and trunk, and the large after-deck will accommodate wicker chairs for a large party. The tender is carried in chocks on the roof of the cabin trunk, and a stack at this point lends to the steamship appearance.

The boat is 60 feet over all, with 12 feet 6 inches beam and 4 feet 6 inches draft, and is powered with two 24-h.p. heavy-duty Buffalo motors.



A twin-screw 60-footer powered with a pair of 24 h. p. Buffalo heavy duty motors.

Teresa V, a Single-Hander.

TERESA V is the 1913 member of the long line of motor craft developed by Mr. J. Walter Scott, of Detroit. Each of Mr. Scott's boats has embodied the features that have proved successful on his previous cruisers and the present boat leaves little to be desired for the service for which she is intended. Mr. Scott and his wife live aboard their boat for several months each summer and cruise extensively, and the great fund of experience that he has to draw from, has been acquired from an intimate association with his boats. Teresa IV, it will be remembered, was a 39-footer, but after using her for one season Mr. Scott decided to go back to the 45 foot length of Teresa III, as in a boat of this size all the requisites for the accommodation of a moderate party are obtained without crowding.

The new design was worked up by Mr. Carlton Wilby from Mr. Scott's rough draft and the boat is being built by the Bryan Boat Works of Wyandotte, Mich. She is 45 ft. over all by 10 ft. beam and is of the double-ended, life boat model, an excellent one for its seaworthiness. There are raised decks forward and aft with no trunks or skylights and there is a flush bridge deck amidships. This arrangement with its simplicity and lack of deck structures will not look as shippy to the amateur but to the experienced eye it carries the conviction of seaworthiness and practicability. It is all deck above and all cabin below.

In model the hull is fairly full below the waterline forward with considerable flare but no flam. The deadrise is moderate with bilges a bit hard, giving plenty of initial stability. There is plenty of bearing aft but enough rake to the stern to make her easy in a following sea. The construction is extra heavy which means exactly what it says. The keel is deep and of 4-inch stock with cheek pieces making it over 6 inches in reality. The stem knee is 12 inches deep and the planking is

An Excellent Cruiser with Many Novel Features worked Out for His Own Use by the Amateur Expert, J. Walter Scott of Detroit.

1½ inches. There are two sets of bilge clamps besides the sheer and deck clamps and a 6-inch fender stake is bolted through the frames and planked in. The fender is iron shod, as is also the rubbing strip at the deck line. The finish is severely plain outside but of solid mahogany inside and all-hand work except the doors.

In the extreme forepeak is the chain locker creosoted to prevent rot and next a collision bulkhead. Then comes a very large ice box built on scientific lines with double walls and cooling tubes. It will hold four hundred pounds of ice. A similar one on Teresa IV, but smaller held ice for a week. Next comes a good roomy galley as far from the engine room as possible and thoroughly equipped, including a three burner alcohol stove, sink with a tap for fresh water and one for chilled water from ice box reservoir. There is also a hand pump with outboard connections.

Next come two big, full length closets, but one will be fitted with shelves and used for a pantry, for there is an unusually large closet in the after cabin. The main cabin comes next with very large locker berths which may be extended to the drop-leaf permanent table which prevents bedclothes from slipping off and also prevents occupants of berths from rolling out of bed. Each berth really gives as much actual available resting space as the ordinary width bed.

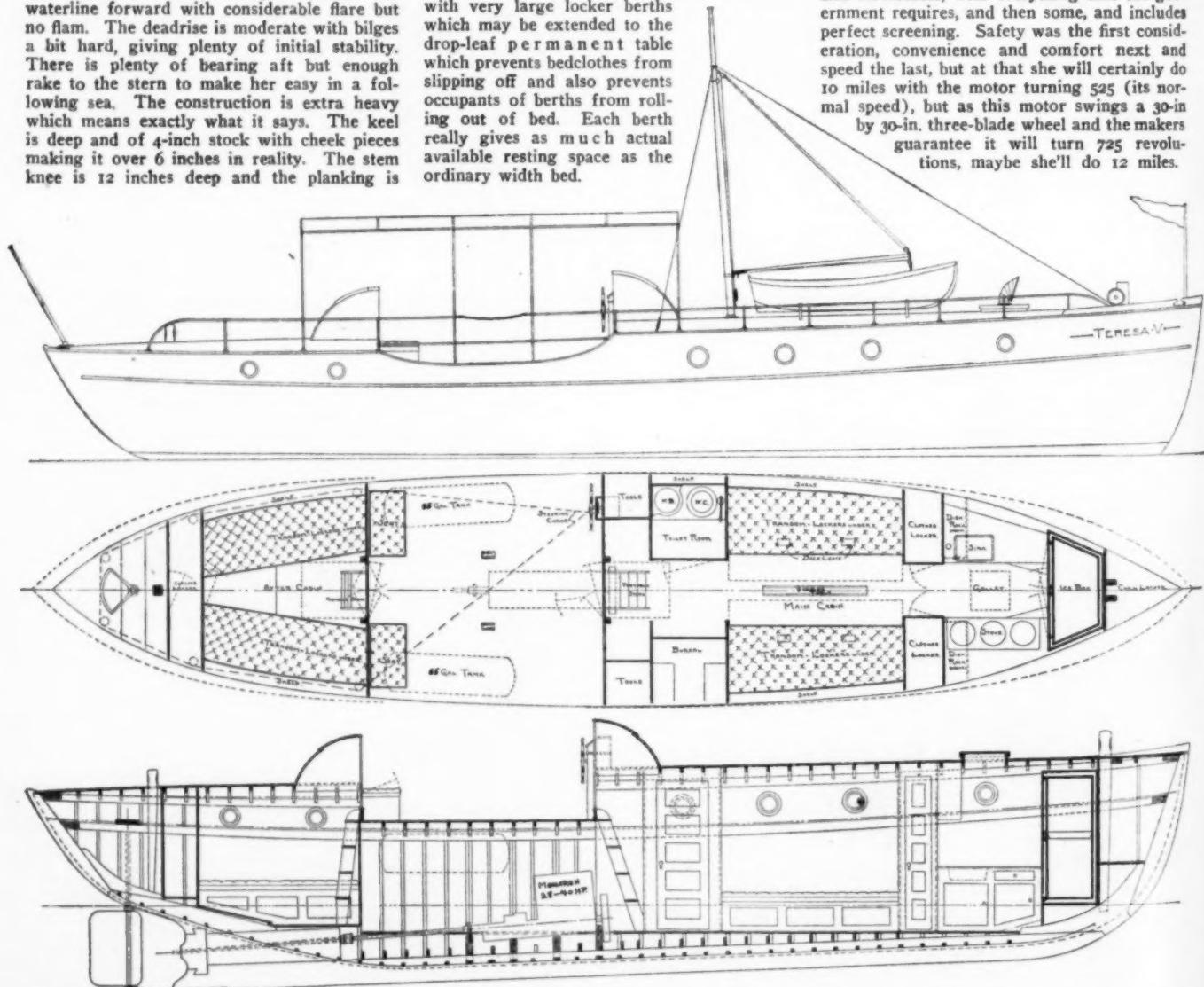
Next there is a large toilet room to port, fitted with a Goblet-Dolan outfit and to starboard a large bureau and then a space for starting the motor, flanked by tool lockers.

Under the bridge is located a 6-in. by 7-in. four cylinder, four cycle 40 h. p. heavy duty Monarch motor, which will use either gasoline or kerosene. It is fitted with governor, bilge and air pumps and Bosch dual ignition. Two cylindrical seamless steel tanks of 65 gallons capacity each are under this bridge deck in oak cradles, which are so constructed that they form deck knees. The electric light outfit is also under this deck.

Aft of the bridge deck is a small cabin with permanent locker berths. The after clothes closet has been enlarged and a small toilet has been added since the plans were drawn.

Instead of the usual flimsy military mast useless except for flying signal flags, a semi-spar is substantially stepped and well stayed and carries a boom and falls and the 9 ft. Davis dinghy which is equipped with balanced bridle may be swung outboard by one man in less than three minutes. A season's use demonstrated that this is a dead easy method. An Evinrude outboard motor is carried for the dinghy and in case of a broken propeller shaft or wheel, this outfit is capable of towing the cruiser into port in ordinary weather. In case of bad weather and a breakdown, she will ride to a sea drag that is carried.

The entire equipment is unusually complete and serviceable, with everything that the government requires, and then some, and includes perfect screening. Safety was the first consideration, convenience and comfort next and speed the last, but at that she will certainly do 10 miles with the motor turning 525 (its normal speed), but as this motor swings a 30-in by 30-in. three-blade wheel and the makers guarantee it will turn 725 revolutions, maybe she'll do 12 miles.



Teresa V is the result of a number of years experience with cruising boats. She is husky, able and comfortable—all deck above and all cabin below.

A Contrast in Arrangement.

HERE will be launched this spring a 36-ft. fast day cruiser for Mr. William H. Potter, of Watertown, Mass. The boat was designed by Swasey, Raymond & Page, Inc., of Boston, and will be used by her owner at Eggemoggin Reach, and for cruising along the New England Coast. She is a combination of the raised-deck and trunk-house types, and is one of a distinct type developed by this firm. Her lines show by their flare forward and good buoyancy everywhere, easy run, with plenty of freeboard, that she was designed to have both seagoing qualities and speed.

This speed embodies features of design, power installation and arrangement of living quarters that should make her splendidly adapted to her owner's requirements. Strength and reliability have been thoroughly worked out, but the requirement of a fair turn of speed was not overlooked.

The deck arrangement is good. The midship house and a number of low skylights and ventilating hatches compare favorably with many much more pretentious yachts and the cockpit is protected by an awning which extends from abaft the house.

The arrangement below decks is similar to that on Natoma and several other boats that were designed by this firm and is, so to speak, a standard arrangement developed by them on boats of this size. There is privacy and accessibility and a place for everything without being crowded.

The forward part of the boat under the raised deck is used entirely for the owner's quarters. In the bow is a 30-gallon water tank and aft of this is a galley completely fitted with stove, sink, dresser, lockers, etc. Next

Two Boats of the Same Dimensions and Power Plant, but Widely Different in Design.

is the main cabin, with sideboard forward on the starboard side and clothes closet on the port side. Aft of this are two transoms (extension), while aft on the port side is a good-sized toilet-room and a clothes closet on the starboard side with stairs to the bridge.

Under the bridge is a large ice box on the starboard side and a passage from the cabin to the engine-room. The engine-room is amidships and contains 2 pipe bunks, two 50-gallon gasoline tanks, tool shelves, lockers, etc., and is very completely found in every respect. Especial attention has been given to keep all the heavy weights concentrated in the middle of the boat, such as engine, gasoline, etc.

Aft of the engine-room is a large cockpit with lounging seat at the after end with rest of the cockpit left open. This cockpit floor is built high so that the passengers will be up high enough to see where they are going, and is protected by wire railing and a khaki spray cloth and awning.

There is a deck on both sides of the engine trunk which leads to the bridge between the engine-room and owner's cabin, and raised deck from which the boat is steered and controlled. This bridge is high enough and far enough forward so the helmsman can see where he is going without

effort obviously a great advantage.

The gasoline tanks with a capacity of 100 gallons and the water-tank with a capacity of 30 gallons are sufficient to give 225-miles cruising radius. The engine is a 30-h.p. four-cylinder $5\frac{1}{2} \times 6$ -in. Sterling of the speed type, turning a 26" propeller which will give a speed of about 12 knots.

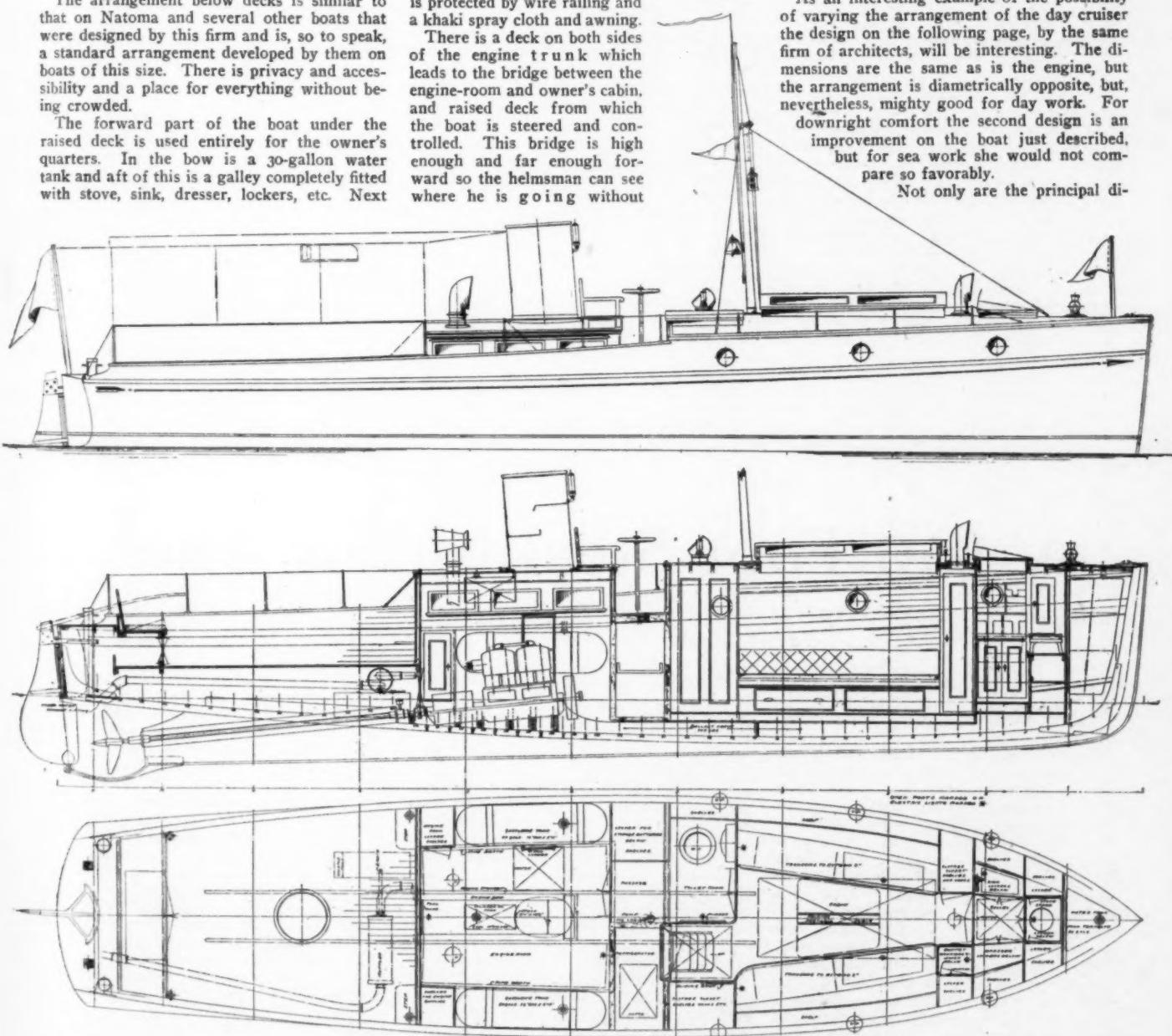
In her construction oak was used for the keel and frames, the latter being spaced 9' apart. The hull is planked with cedar. The superstructures are of mahogany and the decks of pine. Bulkheads are employed to separate the engine compartment from the other part of the boat, access being had to this room through a deck hatch and passage. The funnel above this compartment gives good ventilation.

She has enough accommodations so that two persons and an engineer can comfortably cruise as long as they desire. She is also enough of a sea boat to be able to enter many of the long-distance races and drive through rough water without having to slow down.

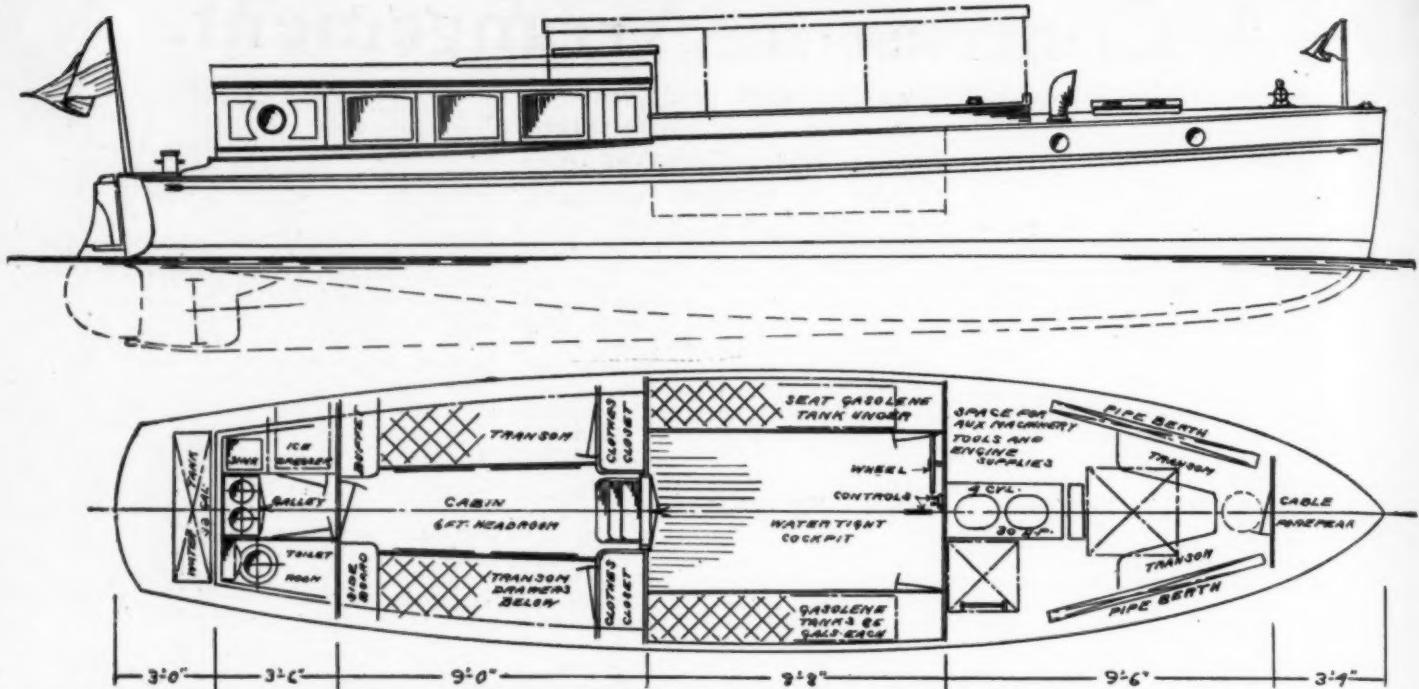
The dimensions of the yacht are: Length over all, 36'; length waterline, 35' 4"; beam, 8'; draught, 2' 10".

As an interesting example of the possibility of varying the arrangement of the day cruiser the design on the following page, by the same firm of architects, will be interesting. The dimensions are the same as is the engine, but the arrangement is diametrically opposite, but, nevertheless, mighty good for day work. For downright comfort the second design is an improvement on the boat just described, but for sea work she would not compare so favorably.

Not only are the principal di-



The 36-footer designed by Swasey, Raymond & Page for Wm. H. Potter for day use, has sufficient accommodation for more extended cruising.



Another 36-foot day cruiser of the same dimensions as the boat on the preceding page but diametrically opposite in arrangement. Note the positions of the cockpit, engine room, cabin and galley compared to those of the other boat.

mensions of the two boats the same, but the forms of the hulls are very similar. The freeboard is high forward; there is a slight sheer to the main deck line and the line of the raised deck is carried aft to the house whence it is swept down in an easy curve to the after deck. There is considerable deadrise to the midships section, and aft of it the underbody flattens out and sweeps up in an easy run to the transom. A pronounced keel extends from the stem aft and the deadwood and skeg protect the wheel and support the rudder, besides making the boat easier to hold on her course. The rudder is hung outboard on the transom.

In the second design the motor is installed under the raised deck forward, and there is also space in this compartment for a bench and auxiliary machinery, besides sleeping accommodations for two men on pipe berths which fold above the transoms on either side.

The cockpit is amidships with upholstered

transoms along either side of it and the boat is controlled from the bulkhead. The cockpit coaming is carried forward and across the deck as a water break, enclosing enough of the deck to handle charts on. The cockpit is large and allows the steersman to be one of the crowd.

The main cabin is aft under a trunk with drop sash windows, making the living quarters extremely well lighted and ventilated, a desirable feature in any boat and especially so in one of this type. The forward part is devoted to the sleeping quarters, there being a broad, comfortable transom along either side with large clothes closets at either side forward and a buffet and sideboard occupying opposite positions aft.

A door leads through the bulkhead to the galley, which is under the after part of the trunk and isolated completely from the rest of the boat. It is provided with an icebox,

dresser, sink and stove and opening from it to starboard is the toilet room.

A comparison of the two day cruisers is interesting. In the matter of appearance and seaworthiness the first one has considerably the advantage. Her bridge deck, amidships trunk, stack and signal mast give her a particularly pleasing and trim appearance somewhat lacking in the second boat. Her motor is a little aft of amidships, a considerably better position for a sea boat and it together with the tanks and auxiliary machinery is isolated from the living quarters and ventilated by the stack and ventilator even when it is not advisable to open the windows in the trunk. The second boat has the advantage in the matter of comfort, the living quarters being somewhat more pleasant, due to the high trunk and excellent light and ventilation. They are easily entered from the cockpit than are those of the former boat and are a trifle roomier.

A 150-Foot Steel Motor Yacht.

A Design That Has the Appearance of a Torpedo Boat Destroyer and Which Calls for a Motor Yacht Bigger Than Any Now Afloat.

THE design for a steel motor yacht, which, if the boat is actually built from it, will be the largest motor yacht afloat, appears on the following page. The design was prepared by Morris M. Whitaker of Nyack, N. Y., and embodies a number of features that are new to craft of this type and size. It will be seen that the general appearance of the boat is that of the torpedo boat destroyer. The freeboard is raised forward to a point about one-third of the way aft and the line of the raised deck is carried amidships by the trunk over the engine room. There is a sunken deckhouse forward, the floor of which is continuous with the main deck and aft there is a large deckhouse that is used as a music room. The stern is a rounded transom and is an interesting departure from the old steam yacht type so frequently found on the larger motor craft. There are two large low stacks amidships with a signal mast between them and the roof of the trunk is utilized for stowing the four tenders.

As designed the boat could be equipped with two motors of 500 h. p. each, which would be sufficient to give a speed of about 17 miles per hour. The fuel capacity is sufficient for a cruising radius of 1500 miles on one filling of the tanks.

Mr. Whitaker has succeeded in obtaining excellent accommodations in this design and it will be noticed that the owner's quarters are aft of the engine room with the exception of the dining saloon, which is in the forward deckhouse. The owner's quarters are entered through the music room, the after end of which is an open deck shelter. There is another companion to these quarters on the after deck and the maid's quarters which are isolated in the after part of the vessel, are entered by a separate companionway in the small after trunk. The accommodations aft consist of a large full width stateroom at the forward end of the passage and with a private bathroom adjoining. On either side of the passage there are two staterooms, each pair

with a private bathroom between accessible from either room. At the after end of the passage is another double stateroom with its private bath, and the maid's quarters consisting of two single staterooms, a wash room and lockers occupy the stern and are bulkheaded off from the owner's quarters.

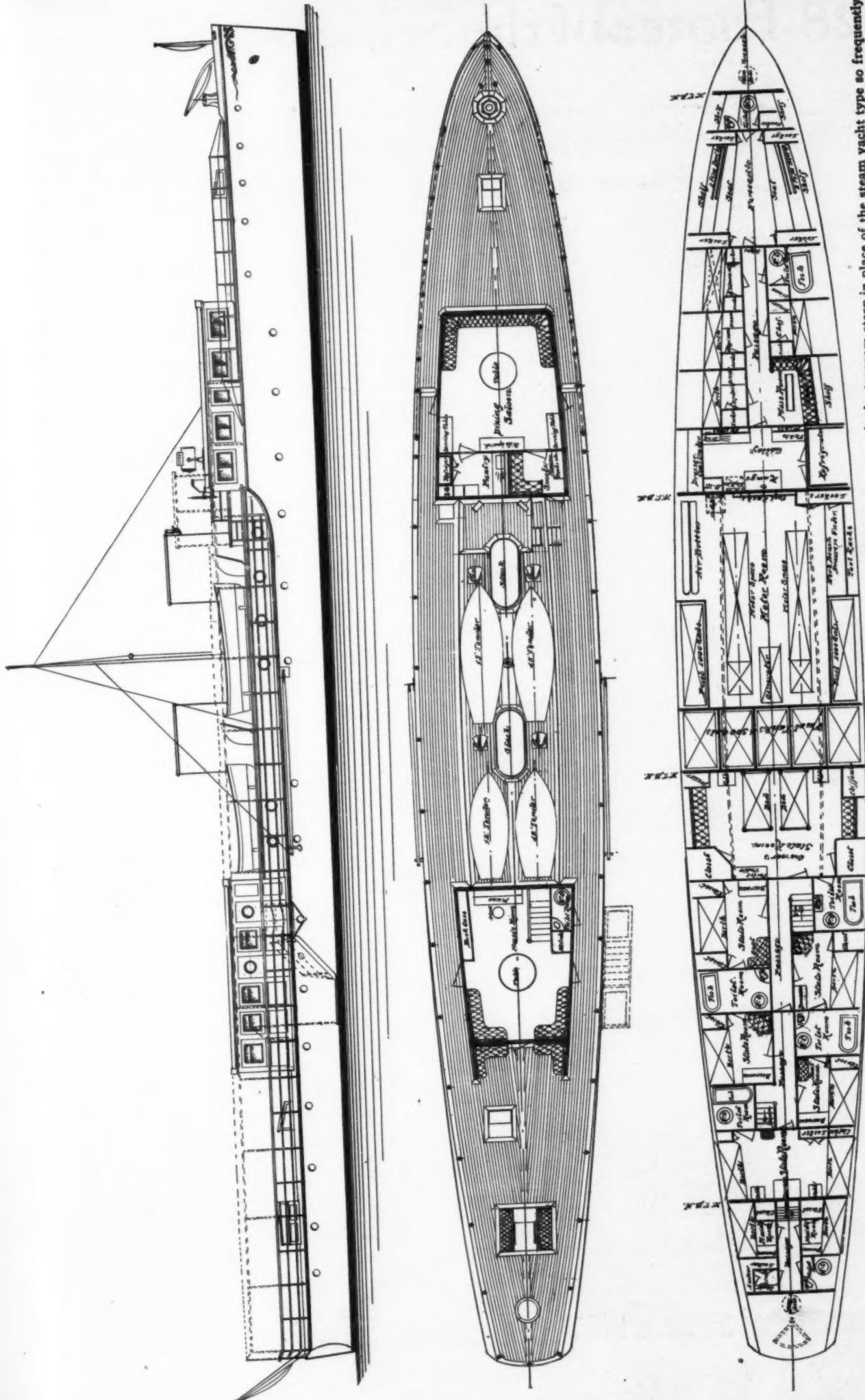
Beneath the forward deckhouse is the large full width galley and a passage runs from this compartment forward to the forecastle. On either side of this passage are staterooms for the captain, engineer, steward and chef, besides a bathroom and the mess room. The forecastle has accommodations for six men and is provided with a separate toilet room and a number of lockers. It is entered through a scuttle hatch on the forward deck.

The dimensions of this boat are 150 ft. by 21 ft. and she is so modeled that she may be driven at high speeds, in fact the speed attainable will be dependent upon the power installed, as there is no limitation in the form of the underbody.

MARCH, 1913.

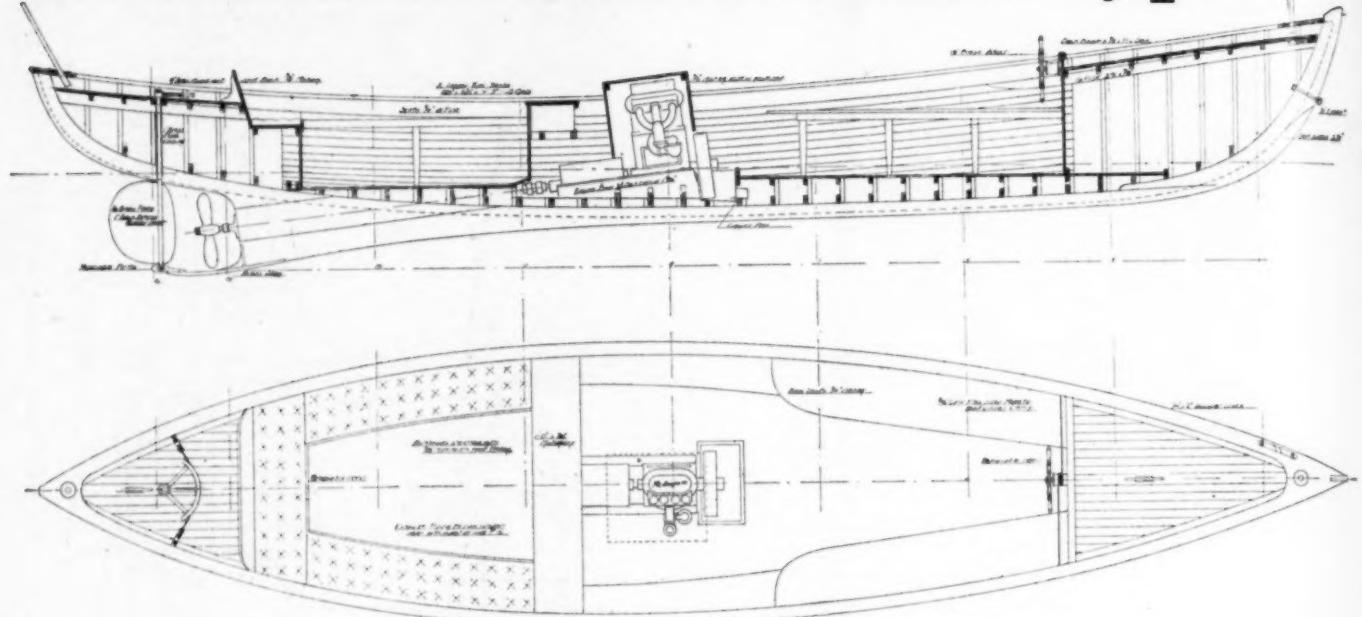
New Motor Boat Designs.

29



The design of the 150 foot motor yacht by Morris M. Whitaker has the ear marks of the torpedo boat destroyer. An interesting departure is the transom stern in place of the steam yacht type so frequently found on the larger motor craft.

28-Footer of the Seine Boat Type.



The two cylinder Buffalo motor is installed amidships under a housing and the gasoline tank is beneath the thwart just aft of it.

FOR concentrated seaworthiness combined with easy driving qualities it would be impossible to choose a better type than the seine boat. The design shown on this page was prepared by John G. Alden, of Boston, as a tender to Mr. Bliss's schooner, Wendameen, and a boat has been built to it. It is modeled after the Gloucester seine boat, the waterlines having been fined a little forward and made a little fuller aft to give sufficient bearing surface to prevent squatting when under power.

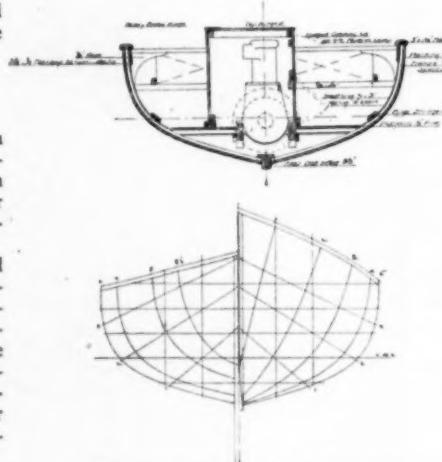
With the exception of short decks forward and aft the boat is open, the motor being installed under a housing amidships. The interior is divided into two cockpits by the engine and the thwartship seat under which the gasoline tank is installed. The forward cockpit is for the use of the operator and whatever stores or baggage is to be taken to or from shore, while the after one, which is upholstered, is for the use of the passengers.

An interesting feature of the boat is the bulwark that extends from stem to stern and

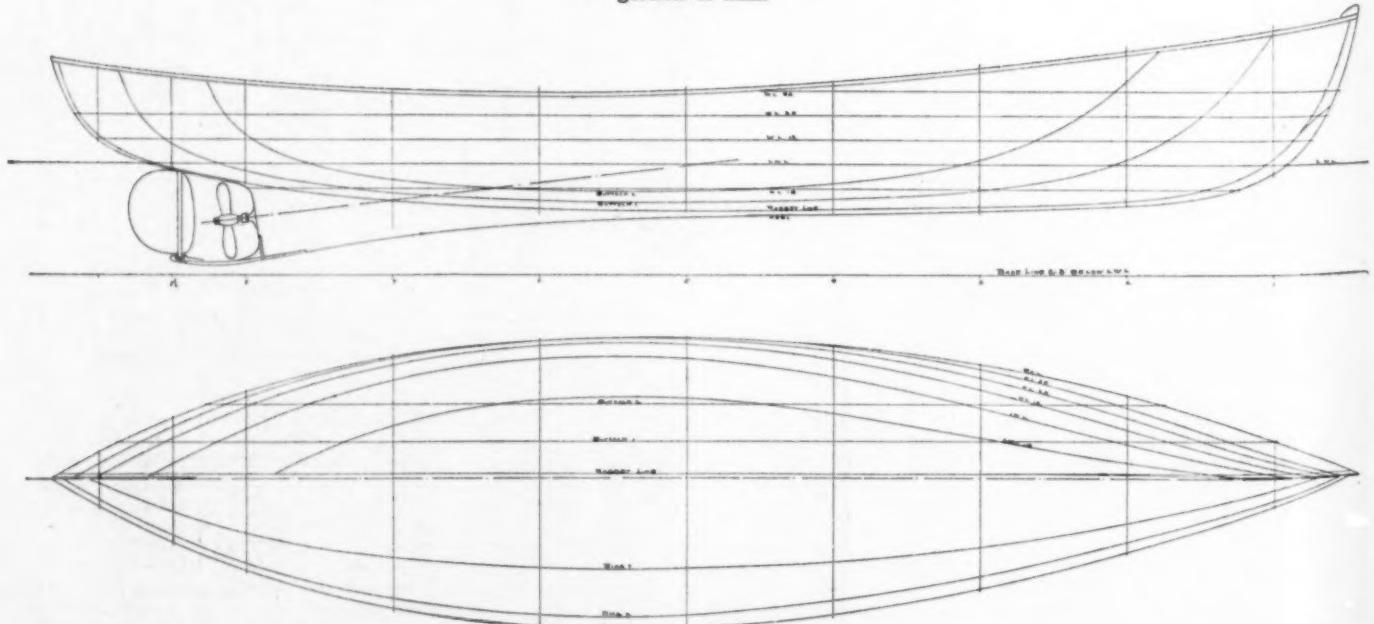
forms the cockpit coaming. This gives a sense of security when standing or handling lines on the decks and moreover makes them available for lines, etc., without the possibility of the latter being washed overboard.

A glance at the body plan indicates a form in which ease in a sea is the principal feature. The bottom is rounded with some deadrise and with bilges sufficiently pronounced to give stability. The sections are fine forward with lots of flare and just a suggestion of flam at the bow. Aft they are somewhat fuller to prevent squatting when under way although generally speaking the ends are very symmetrical, which is a good point in a sea boat. There is ample deadrise at the bow and also at the stern and there is a graceful sweep to the sheer line. The wheel is thoroughly protected by the deadwood which runs from amidships aft and a skeg of brass supports the rudder post.

The motor is a two cylinder Buffalo and it is housed in completely.

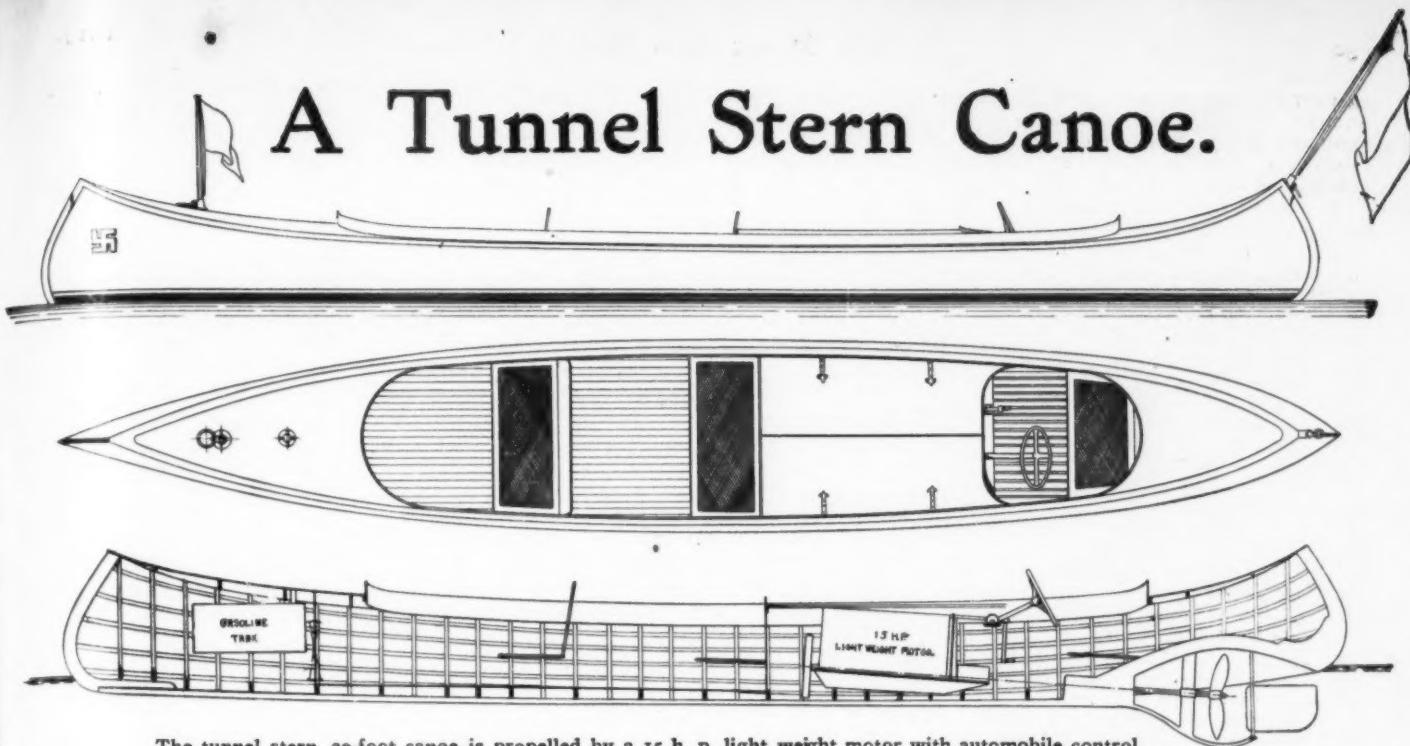


The sections are fine forward with lots of flare and just a suggestion of flam.



The seine boat model with its easy lines and symmetrical ends makes a great sea boat and is very easily driven at moderate speeds.

A Tunnel Stern Canoe.



The tunnel stern, 20-foot canoe is propelled by a 15 h. p. light weight motor with automobile control.

SO FAR as we have been able to determine, this is the first application of the tunnel principle to a canoe. The boat was designed and will be built by H. B. Pickering & Co., for Mr. H. Hudson, of Grand Rapids, Mich., and she is novel in more respects than one. The motor is a light, high-speed machine of fifteen horsepower and is in-

stalled a little abaft amidships under swinging hatches, as in runabout practice. The boat and motor are controlled from the after seat and there are two more seats in the forward cockpit. There are decks at bow and stern and a coaming extends around the cockpit. The gasoline tank is installed beneath the forward deck.

The canoe is 20 feet in length and is built on the light ribband carvel construction with selected mahogany planking. All fittings and exposed metal work are nickelized and the little craft will be one of the trimmest seen on the Grand River this season.

A speed of 16 to 18 miles is expected from the little craft.

Remoh--An Original 34-Footer.

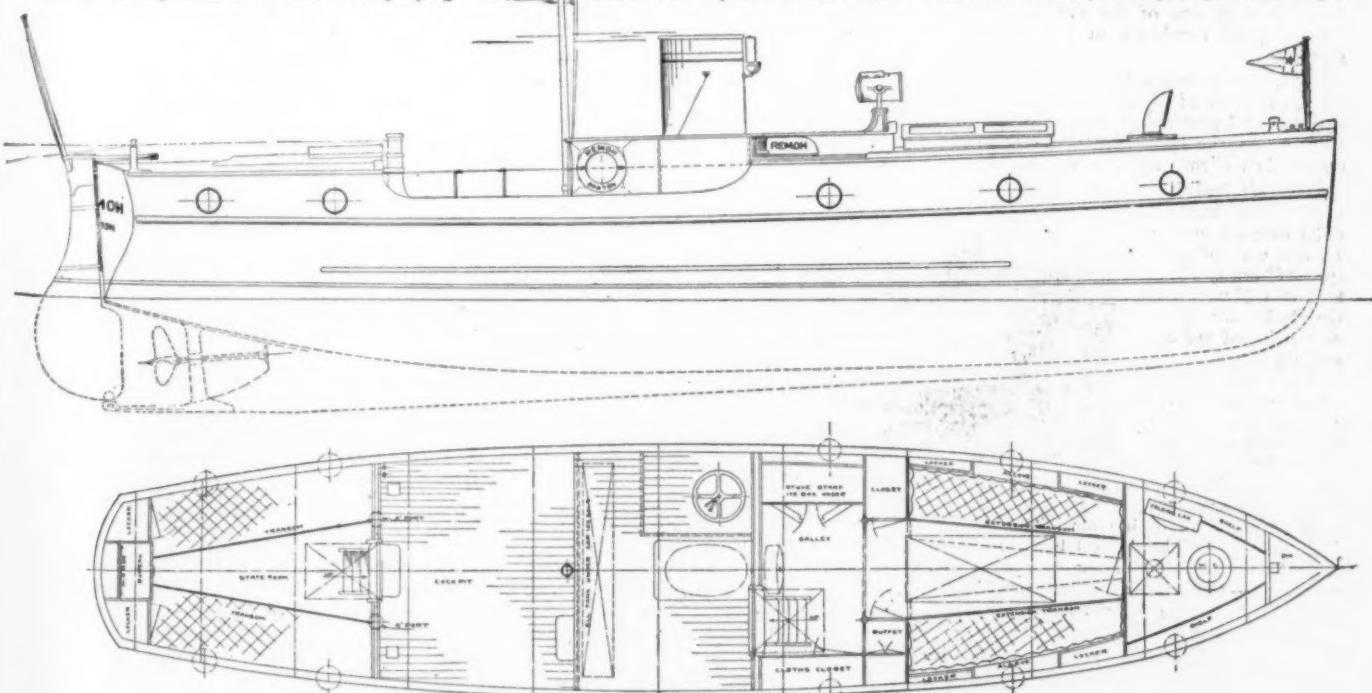
A Double Cabin Cruiser With Many Unique Features.

THE newest Remoh plans, of which are shown above, is the result of five years of experience with small cruisers on the part of the owner and the wide experience of the designers. The owner, Mr. A. P. Homer, of Boston, desired to get as much accommodation into a 34' boat as it was possible to obtain without sacrificing speed, and, at the same time, get a boat that would be thoroughly seaworthy, and how well this has worked out can be readily seen from the accompanying

plans. The lines of this boat forward show a fairly full waterline, so as to give good buoyancy, with a wide flare above the water. This flare, however, doesn't start until about halfway between the waterline and the top of the deck-house,

so that she relies essentially on her buoyancy of form below the water to start her rising. In the midship section, the lines show a normal dead rise, and considerably more draft than is usual in a boat of this type. Aft, she shows a rounded section of the latest launches built for the United States Navy.

The owner went over these plans with a great deal of care for several months before taking the matter up with the naval architects; then the architects, Swasey, Raymond & Page,



In the arrangement of the 34-footer, Remoh, there are many unique features. Note the arrangement of the bridge deck and cockpit amidships.

New Motor Boat Designs.

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got out the plans shown herewith. She shows features of design, arrangement, etc., which are most unusual in a boat of her size, but there is a reason for every one, as will be brought out later.

In the first place, it was essential that the boat have separate quarters for two people, outside of the owner's immediate family and the crew. The after stateroom shows two transom berths 6' 6" long, with storage arrangement, consisting of four drawers, under the transom; a bureau, with three drawers and two lockers; then comes the lazaret, with an access hatch in the center of the cockpit. Forward of the lockers is a solid collision bulkhead, double-planked, canvassed between, extending from the deck-line, which, at this point, is the beginning of the bridge deck, to the keel with a frame each side of the same, so that any water coming up against the bulkhead on either side will not force it off of its fastenings.

The bridge deck is large and high. The reason for this is that the entire power plant of the boat, including the gasoline tank, which is made thwartship and in three sections, so that the gasoline can be drawn from any section; whistle tank, bilge pumps, electric outfit, etc., are all located under this bridge. The location of the bridge gives 4' 3" headroom in the engine-room. Immediately forward of this comes the galley, which, as is shown, is the full width of the boat. This does away with the usual arrangement where the engine-room and galley are combined. Immediately forward of the galley and the stores locker come two mahogany columns with a buffet with a place for ginger ale and soda water in a large locker underneath, and on the port side, a clothes locker. Then come two large transoms, located well up from the floor, so as to get width, with four drawers under each one. As the owner is fairly sizable, the skylight over this compartment gives 6' 3" headroom. Immediately forward of the main cabin comes a well-arranged toilet.

The outboard profile of the boat shows a number of features which are worthy of consideration. In the first place, her freeboard is unusually high. The effect of this, however, is taken off by the heavy guard which runs around her at her sheer strake. As you come aft you will note, in the first place, a heavy bulwark, immediately aft of the skylight, which acts as a breakwater, giving an opportunity to have a slide which will not be always leaking, and on the port side forward of the steering wheel, a chart box, which will be protected and not struck by every bit of spray that comes aboard. The stack is used as a ventilator for the engine compartment and the forward half of it as a storage space for lines, fenders, running lights, etc. You will note that the rail on the level of the breakwater is carried back to the break of the bridge-deck. This is of exceptional height so that people passing over the bridge-deck will be protected and will not feel as if they were in danger of being rolled overboard. The operator's cockpit on the port side is sunk to the level of the watertight cockpit on the aft side of the bridge. The signal mast is located so that the helmsman can handle signal flags. This mast is stepped into a square brass pipe, so that it will stay in position without any rigging, or stays, the step being about 3' 8" long.

The cockpit aft of the bridge shows an absence of seats, etc., giving a place for the handling of linens. If the owner wishes to take anybody with him, chairs can be placed in this. You will note the heavy towing bits on either quarter of the cockpit. These, being located forward, will enable the boat to turn, when there is a tow behind her. In order to prevent the catching of lines, an eye-beam guard is mounted at the extreme stern and two closed chocks riveted on the top if it. This guard carries the sweep of the boat to a rounded corner and then square across the top so that a line will lift up the side of the boat and sweep onto this guard without catching any of the steering gear. The steering gear is

all on deck, with the exception of a short section of line, from the forward side of the after cabin to the drum of the steering wheel. This is under the cockpit, but is readily accessible from the lazaret or engine-room compartment. On the top of the quadrant is a socket, which takes the end of a boathook handle.

The boat is equipped with one of the new model B 2-20 Sterlings, giving 30 h.p. at 700 r.p.m. The first wheel that will be put onto the boat will be a 3-blade 24 x 24 wheel, which is expected to turn at a speed in the neighborhood of 700 r.p.m. The engine will be equipped with an air compressor, Bosch ZR 4 magneto, and with an Irish reverse control, operating pneumatically, and controlled by small lever under side of the steering wheel. Spark and throttle are led to the top of a Hall Gibson bridge-deck steerer. A Kinney bilge pump, driven from the flywheel, will be installed in the engine-room, with a capacity of twenty gallons per minute. This pump will be connected not only with the bilge, but with an outside pipe so that, if desired, it can be thrown on for use in washing down decks.

A gasoline tank with a capacity of 100 gallons will give this boat a cruising radius of about three hundred miles. The speed of the boat is expected to make it ten nautical miles per hour.

With the plans all matured and order placed for the engine, the next question that came up was the question of the builder. The owner had a personal acquaintance with a builder, who was unknown to anyone in or around Boston, but whom the owner considered absolutely competent to fulfill any contract that he would undertake, and who would take pride in turning out as fine a boat as it was possible to build, so Fred B. Hayes, of Bar Harbor, Maine, got the contract for the building. He promptly secured several of the best workmen in New England and the boat was started. She is under way now, and the owner expects that the fulfillment of the design will exceed his fondest hopes.

Helen II, A 30-Foot Winner.

HELEN II, the Ferro-powered Prize Winner of Montreal, season of 1912, is illustrated in the photograph herewith. She has proven herself one of the fastest and, in every way, one of the most satisfactory family speed runabouts in that section of Canada.

Helen II was designed and built by Mr. Irving C. Gilbert, of Brockville, Ont., and was equipped and powered by the Ferro-Montreal Distributors, the Pyke-Putnam Motor Co., for one of their clients, Mr. Hugh C. Knox.

She is planked with 9/16" Washington cedar over steam-bent frames 3/4" x 7/8" spaced 6" centers. Her keel is 1 1/2" x 4" and the decks are inlaid with strips of mahogany, separated by 1/8" strips of white spruce, which not only gives a beautiful effect, but has proven most durable as the soft spruce acts as a cushion for the mahogany and there is never an open seam. The transom and coamings, bulkheads, seat backs, paneling around tank, and all trimmings are of selected mahogany—piano finish. The general dimensions are: Length over all, 30' 6"; beam, 6' 2".

The power plant is a 3-cyl. 25-h.p. Ferro, with regular equipment, including Bosch ignition. The entire outfit has shown wonderful efficiency, the engine turning a 19" x 26" 3-blade

All Canadian Designed and Built Runabout, Equipped with a Ferro Motor, That Has Won a Number of Cups.

Hyde propeller 1,100 to 1,125 r.p.m., and on record runs drove the boat better than 20 m.p.h. over a measured course.

The Gaudry Challenge Cup offered by the St. Rose Boating Club was easily won by

new 27' x 4' 6" boat, also designed and built by Mr. Gilbert and equipped with a 3-cyl. 21-h.p.

Bijou II early took the lead, but Helen II forced to the front on the turn of the first half and held it amidst great excitement at the finish line.

Another cup, a beautiful free-for-all challenge trophy, presented by Mr. C. I. Gogo, of Cornwall, Ont., was won Sept. 7th, and the Beaudry cup, a beautiful gold-lined silver trophy, was presented as first prize free-for-all by the Cornwall Boating Club, and raced for

a week later, Sept. 14th, both of these cups being won by Helen II.

A fifth cup was presented by the Board of Trade, Malone, N. Y., for a free-for-all race at the big Stanley Island resort, Labor Day, Sept. 9th, and was also added to the collection.

In interior arrangement the boat is a trifle different from the usual runabout practice. The motor is installed in the forward end of the cockpit—practically amidships, and is controlled from athwartship seat just aft of it, behind which is the gasoline tank, giving gravity feed. There is a seat across the after end of the cockpit, but otherwise it is open for chairs. The lines show a fine entrance and a broad flat run, high freeboard forward with a touch of flare at the deck.



Helen II has an almost unlimited carrying capacity.

Helen II, although the entries included a similarly designed boat, Bijou II, with nearly double power.

Another race, the free-for-all, was one of the prettiest races imaginable. The course was from a dead start at the St. Rose Bridge, down the river to a hairpin turn in close quarters, and back, a distance of 8 miles. The principal contestants were the Helen II, Bijou II with her big 3-cyl. 45-h.p. and the Dark Horse, a

AMONG THE CLUBS



The club float at Catalina Harbor, California, whose "all year" climate lays no chilling finger upon the activity of those who find their enjoyment in motor boating.

Corinthians Hold Election.

At the annual meeting of the Corinthian Yacht Club of Baltimore, held recently, the following officers were elected for the coming year: Commodore, Graham Eckel; vice-commodore, W. H. Evans; rear-commodore, W. W. Varney; secretary, Calvin D. Swank; fleet surgeon, Dr. J. C. Manning; and measurer, H. C. MacRae.

Eau Gallie Regatta.

On February 22nd, the Eau Gallie Yacht Club held its Seventh Annual Regatta over a three-mile triangular course on the Indian River. A number of races had been arranged and many prizes were awarded to the winners. A baseball game in the afternoon, and a ball, given at the yacht club that evening, concluded the day's festivities. On this occasion the club extended a cordial invitation to all yachtsmen to accept the hospitality of their club house, which is one of the most attractive on the east coast.

Election at Fall River Yacht Club.

At a recent meeting of the Fall River Yacht Club, the following officers were elected for the year 1913: President, Jabez Wilkinson; commodore, Frederick Webb; vice-commodore, Wm. E. Fawcett; rear-commodore, James Conn; secretary, Frank Rivers; treasurer, Charles H. Davis; measurer, Herbert M. C. Skinner.

Mill Creek Yacht Club's Year.

Another successful year has passed over the Mill Creek Yacht Club. Besides adding considerably to its membership and holding two series of races, the social events in the Club House were very successful. As a Christmas gift, the members of the Club presented to Commodore W. H. Barth, a silver model of a motor boat. The officers installed for 1913 are: Commodore, W. H. Barth; vice-commodore, John J. C. Seifert; rear-commodore, Henry Kuhn, Sr.; fleet captain, W. P. Hicks; secretary and routine officer, W. E. Peckham; treasurer, J. H. Mahnken, and financial secretary, P. Fischer.

Baltimore Club Elects New Officers.

The Baltimore Yacht Club has elected the following officers: Commodore, Carlton W. Slegle; vice-commodore, A. C. Meyer; rear-commodore, J. E. Kinnaman; secretary, J. Dal Rogers; treasurer, Wm. Helback; fleet captain, Roger G. Broome, and fleet surgeon, Dr. F. S. Linthicum.

Annual Meeting of the Byram Club.

The Byram River Yacht Club held its annual meeting recently and elected its officers for the year 1913. Commodore, Dr. Swepson J. Brooks; vice-commodore, Daniel Koehler; rear-commodore, Arthur E. Chandler; fleet captain, Charles H. Ellis, Jr.; fleet surgeon, Dr. Wm. J. Sheehan; secretary-treasurer, Louis C. A. Lewin.

Euchre and Pinochle for Rockaway Club.

The Rockaway Point Yacht Club will hold its first euchre, pinochle and dance at the Imperial, 360 Fulton St., Brooklyn, N. Y., on Monday evening, March 3, 1913. Handsome prizes for both players and non-players will be awarded.

Orum Yacht Club Elects.

At the annual meeting of the Orum Yacht Club, held at the Club House, North Beach, L. I., these officers were elected for the ensuing year: Commodore, Anton Engel; vice-commodore, H. W. Lange; rear-commodore, Charles Hock; treasurer, Joe Vetter; financial secretary, Nich. Cockran; recording secretary, T. W. Bailey.

Hudson River Yacht Racing Association Schedule.

At the annual meeting of the H. R. Y. R. A. held in New York City, officers for the present year were elected and a schedule of Saturday afternoon of racing dates drawn up, covering a period from May 30th to September 20th.

Regatta at St. Augustine.

On March 31st, April 1st and 4th, during the celebration commemorating the landing of Ponce de Leon, the St. Augustine Power Boat Club will hold its ninth annual races for the Southern Championship. A new feature of the races will be the Speed Championship which will be decided in favor of the boat making the fastest time in any one of the races on the program. The Southern Championship will be decided in two 35 mile handicaps, in which the handicapping system,

originated by Sec'y C. F. Hopkins, Jr., will be used. The races in Florida this year will be the first sanctioned by the A. P. B. A. under their new rules.

There will also be a three-day meet at Cocoa, Florida, on March 18, 19th and 20th, given under the auspices of the Rockledge-Cocoa Club, and sanctioned by the A. P. B. A. At both places the length of the courses will be 2½ miles. At St. Augustine, the course is triangular in general shape and at Cocoa, it is straightaway with a one-eighth mile turn at either end. Depth of water averages 9 feet at both places.

It is advisable to ship boats down by boat from New York or Philadelphia, to Jacksonville, from which point they will be towed by the Club, without cost to owners, to their respective racing points and return to Jacksonville, as well as with the guarantee of safe delivery at all places. It is predicted the affair will be a huge success.

Delaware Association's Plans.

The Delaware River Yacht Racing Association has arranged its schedule of regattas for the season. Racing will begin on June 20 and close on October 4 but it is possible that additional races may be arranged before and after these dates. All holidays will be left open for any clubs to run open races.

Motor Craft in Lake Erie Pageant.

Motor boats are intended to play an important part in the Commodore Perry centennial celebration on Lake Erie next summer, the National Association of Engine and Boat Manufacturers having decided that their annual carnival will be held this year at Put-in-Bay and will form part of the Perry celebration during the week beginning July 27.

Chicago Carnival.

The Associated Yacht and Power Boat Clubs of America will hold their second annual carnival at Chicago from August 16 to 24. The races will be held off Grant Park and inside the yacht basin and ample accommodations are being provided for spectators. It is expected that fast boats from all over the country will take part.

Maryland Race.

The Maryland Boat Club, of Baltimore, Md., have decided to hold another 200 mile race on July 25th. The entries will be divided into classes for cruisers of over and under 45 feet and cabin cruisers of 40 feet and over. Members of any recognized club are eligible to compete and all information can be had from James C. Callis, 329 N. Calvert Street, Baltimore, secretary of the racing board.

Westville Officers.

At the annual meeting of the Westville Power Boat Association, Westville, N. J., the following officers were elected: Commodore, D. R. Janney; vice-commodore, J. D. Haines; rear commodore, J. Symes; secretary, J. T. O'Brien; treasurer, G. C. Ade. The season will open May 30th and successful year is anticipated.

Hampton Club's Officers.

The Hampton Yacht Club, Southampton, N. Y., have elected W. E. Creed commodore, E. B. Willer vice-commodore, T. H. Smith rear-commodore, and W. C. Bailey secretary and treasurer.

New Club at Sioux City.

The Sioux City Yacht Club, of Sioux City, Iowa, which was incorporated last year and which erected a new clubhouse with a river frontage of 600 feet, has elected the following officers for the new year: President, F. A. Bishop; vice-president, Geo. Costello; treasurer, F. H. Peavy; secretary, Leonard Lytle, and assistant secretary, Dr. W. L. Bates. The club has over 150 members, over a third of whom are boat owners.

Bergen Beach Re-elects Hildebrand.

At the annual meeting of the Bergen Beach Yacht Club of Brooklyn, H. J. Hildebrand was re-elected commodore, with Geo. H. Hopper and Louis F. Sandkau as vice- and rear-commodores. F. C. Haab was elected secretary and H. L. Horton and A. E. Wheeler were re-elected financial secretary and treasurer respectively. Chas. A. Merritt was elected measurer.

St. Augustine Club's Officers.

St. Augustine Power Boat Club, St. Augustine, Fla., have elected their officers for the season as follows: Commodore, Seth Perkins; vice-commodore, W. M.

Wright; rear-commodore, Geo. W. Corbett; fleet captain, J. C. Hearst; treasurer, Guy Farris; and secretary, Chas. F. Hopkins. Races will be held during the season at Cocoa and St. Augustine and representative entries are being received already.

M. V. P. B. A. to Change Their New Classifications.

The classifications adopted by the Mississippi Valley Power Boat Association at its St. Louis Convention recently for their new restricted class racing, have not met with the approval of racing men as was expected. The reason for the dissatisfaction with the new rules is that the piston displacement values selected do not conform with the standard manufacturing practice, and many makes of excellent engines are barred entirely or forced to enter a higher class which practically eliminates them from the game. It is probable that a special meeting of this association will be called in the near future to consider a readjustment of the cylinder displacement limits in order that no hardship will be worked on any particular size of motor.

Government to Buoy Jamaica Bay.

At a recent meeting of the Waterway League in Brooklyn, N. Y., it was announced that the League's request for buoys and lights in Jamaica Bay had been granted by the Lighthouse Department. The channels in the eastern and northern portions of the bay will be buoyed, in addition to a light on Sloop Island, and channels to Bergen Beach, Canarsie and Old Mill will be prominently marked early in April.

Government Issues Map of Inside Route.

The Coast & Geodetic Survey, Department of Commerce and Labor, Washington, D. C., have published a very complete guide of the inside route between New York and Florida, giving complete information of all points along the route, together with a set of eight charts folded inside of an envelope in the back cover. The guide is in a very convenient size for motor boat use, being 8 x 11½ in., which is much more practical way of issuing such a guide than the usual form of government charts. It contains fifty-eight pages of sailing instructions, and gives a tabulated list of distances with depth of water between all principal ports along the route, with much other detailed information for special places where such is necessary. Much information is given in regard to the canals, locks, gasoline stations, etc., along the route. Copies may be obtained direct from the government for the sum of 20 cents.

Yachtmen's Club Again to Handle Bermuda Race.

The Yachtmen's Club of Philadelphia are again this year continuing their policy of a live and wide-awake organization in the racing field. They have again succeeded in placing the Bermuda Race on their schedule, and have fixed June 7th as a date for this important classic which will permit the boats to escape the later summer gales which were encountered last year, and allow them to return to this country in time for other scheduled events. Last year two boats successfully made this trip, and both have promised to start again this year, in addition to at least three more who have already signified their intention of starting.

Tacoma Yacht Club.

The year 1913 opens with every prospect of being a lucky one for the Tacoma Yacht Club. Following the months of inactivity during the summer there was a general revival of interest evidenced in the election of Commodore S. A. Perkins. The hearty manner in which he entered into the club life and put the organization on its feet has stimulated new interest among its members. Through his enthusiasm, the membership of the Club has greatly increased and now includes many of the leading people of the city.

Pacific Club Opens New Home.

The house warming of the Pacific Motor Boat Club of Belvedere, Cal., in celebration of the opening of their new club house, will be long remembered by those participating in the festivities. On the same date the annual election of officers took place and the following were elected for the ensuing year: James S. Hawkins, commodore; Fred W. Kelly, vice-commodore; Frank D. Bowers, rear-commodore; Fred B. Adams, secretary; J. Harry Kelly, treasurer. At present the club has over a hundred members and a number of applicants are on the bulletin board.



From Motor Boating Readers



**A Department for the Exchange of Ideas and the Discussion of Questions of General Interest.
Editorial Opinion on a Number of Questions Submitted by Readers of the Magazine.**

MoToR BoatinG's columns are open to its readers, not only for asking questions, but for placing before other readers ideas, results of experience, opinions, etc., that should be interesting or helpful to them; but the editor will not, of course, be responsible for any opinions expressed or statements made in such communications. The name and address of the writer must necessarily be given in every case to make an answer by mail possible (no anonymous contributions will be considered for publication), but names will be omitted in publishing the letters and answers where desired, in which case it is desirable that initials or other distinguishing signature be appended. Through the correspondence department readers of the magazine may be of direct aid to one another in solving the problems of motor boating.

Too Much Compression.

To the Editor of MoToR BoatinG, Sir:

As a subscriber to your magazine I would like to have your advice in regard to a certain part of my engine. It is a two-cylinder, two-cycle, three-port engine of $4\frac{1}{2}$ " bore and 5" stroke, rated 12-14 h.p. at 900 r.p.m. It seems that the compression is altogether too strong. I have an 18" flywheel and I have yet to find a man that can "pull her over" with one pull. The cylinder head is flat on the inside as is also the top of the piston. The top of the piston comes about $1\frac{1}{4}$ " from the under side of the cylinder head at the top of the stroke. There is also a flange on the top of the piston which deflects the incoming gas to the top. This makes about $1\frac{1}{8}$ " space between top of piston and bottom of cylinder head, not counting the deflector. Don't you think this area is rather too small? What do you think about putting a $\frac{1}{2}$ " gasket (cast-iron) between the cylinder and the cylinder head?

W. O., La Crosse, Wis.

[We believe that without doubt the trouble you are meeting is due to the small clearance space, causing too high a compression. With $1\frac{1}{8}$ " clearance and a 5" stroke you have a compression pressure of over 100 lbs., assuming some leakage past the rings, and it is a wonder that your engine ran at all. We would expect the charge to pre-ignite and the engine to pound considerably. It would be an excellent plan to put $\frac{1}{2}$ " iron gasket between the cylinder and its head, which would reduce the compression to about 70 lbs. per square inch, which is close to the correct value and should make a much smoother running outfit.—Ed.]

Built from MoToR BoatinG's Plans.

To the Editor of MoToR BoatinG, Sir:

As a subscriber to your valuable magazine I wish to thank you for the help rendered me by publishing the article on "How to Build a 22 ft. V-Bottom Runabout," in the March, 1911, issue of MoToR BOATING. I started building it in the latter part of April, 1912, and finished on September 20, working evenings and Saturdays and Sundays on it. She's the only perfect V-bottom in this city. I get the remarkable speed of 10 miles per hour with a single cylinder, $4\frac{1}{2}$ " bore by $3\frac{3}{4}$ " stroke Mohawk engine, rated at 5-6 h.p. I use a Bryant & Berry 13" x $18\frac{1}{2}$ ", two-bladed propeller. There are many of these Mohawk motors in this city and they are always on the go. I am perfectly satisfied with my outfit and will send you a photograph of her as soon as I am able to get one. I will install a three-cylinder Mohawk motor of the above bore and stroke. What speed could I expect and what propeller would you advise?

F. C., Schenectady, N. Y.

[For a wheel for your new engine, would recommend one of two blades about 17 inches in diameter by 26 inches pitch. This may be a trifle off as you have not given us the revolutions at which you desire to run the new engine, but we have based our decision on the engine similar to the one you have at present.—Ed.]

Boat Built 20 Miles from the Water by an Amateur.

To the Editor of MoToR BoatinG, Sir:

I enclose a couple of pictures of a V-bottom cruiser which I built. I purchased the bare K. D. frame from the Bath Marine Construction Company, and did all the work myself without any assistance whatever. The dimensions are length, 25 ft., beam overall 8 ft., waterline, 5 ft. 10 ins. I built this boat 20 miles from the water and most of the work was done after office hours in the afternoon and at night. It had to be loaded on a wagon and hauled over a mile to the railroad and there loaded on a car and shipped to the water front. The construction is the longitudinal and thwartship framing, the seams being made up over battens and it made a good tight job. She is powered with a 9 h.p. 2 cylinder Lackawanna. She has just recently been finished and when the engine is limbered up I expect to get about 9 miles an hour.

H. C., Baltimore, Md.



25-foot cruiser built by H. C. 20 miles from the water.

Propeller with Zero Slip.

To the Editor of MoToR BoatinG, Sir:

Will you kindly inform me as to the size and pitch of a three-blade bronze propeller necessary to drive a 25-foot V bottom boat, equipped with a one cylinder 6 h.p. motor turning 600 to 700 r.p.m. a speed of 12 miles per hour, if such a speed is possible. I have written to two different authorities and their replies have been diametrically opposed. One stated that I should use a 15" propeller with a 16" pitch and the other a 15" diameter with a 21" pitch. I should also like to know the cause of crank case explosions in a 2 cycle engine upon starting same forward after having run same reversed. Throttle and spark control levers at normal positions.

C. H. B., Portland, Me.

[It is hard to see how a wheel of 16 inches pitch could be recommended by anyone for this speed, because should you turn it 650 r.p.m. even with zero slip, it would be impossible to get even 10 miles per hour, to say nothing of the 12 and of course a slip of not much less than 20% can be obtained on a boat of your type. Although you did not give us the beam of your craft or an idea as to her lines, we do not believe you would be able to get more than 10 miles per hour with only a 6-h.p. engine. For this speed we would also recommend a wheel of 15 inches in diameter and 21 inches pitch.

In regard to the cause of crank case explosions occurring when running in one direction and not in the other, it must be due to the engine running at a different speed in one direction than in the other. This might be due to the fact that your engine has an offset cylinder causing a different crank effort, or it might be due to the fact that when the engine is started ahead after being reversed, it will run slower for a short period, due to the change in water conditions in the vicinity of the propeller. The remedy is simple, however. Just open your needle valve a little more while maneuvering than when under ordinary running speed. This is necessary with most types of carburetors on account of the part that the friction of the incoming air plays at high speeds, which is not present at the lower ones.]

Speed with a Hydroplane.

To the Editor of MoToR BoatinG, Sir:

I have a four-cylinder, four-cycle, $5\frac{1}{4}$ " x 7", 1,000 r.p.m., weight 1,000 pounds. Let me know what speed I should get out of a 24' x 5' hydroplane. Also let me know where the step should be located in a hull of this kind to make it raise well and give me the right depth of step—and what horsepower will this engine develop at 1,000 r.p.m. Or would a 24' x 4' with one step about 3 inches about midship be faster than 24' x 5', with 4-inch step amidship? W. L. G., Le Claire, Ia.

[The questions that you asked us above are very difficult to answer. With a good design of hydroplane of these dimensions you might be able to obtain 30 miles per hour, but with a poor one 20 miles per hour would probably be the best that you could obtain. In the first place, your engine is rather heavy for its size, but if it is of a good design, you should be able to get about 50 h.p. from it. It should be geared to the propeller shaft so that you will obtain a propeller speed of about 1,500 r.p.m. The position that you place the engine in the hull also determines to a large extent how much planning effect you will obtain. The step should be located about 55 per cent. of the length of the boat from the bow and its depth should be 3 or 4 inches. We would not recommend a 24' x 4' hull in preference to the 24' x 5' one, as we do not believe a beam of 5 feet is at all too small. During the past season hulls with a beam anywhere from 6 to 8 feet have proven very successful, while on the other hand those with a lesser beam have not shown up as well.—Ed.]

Water in the Cylinder.

To the Editor of MoToR BoatinG, Sir:
I would be glad to have you answer the following inquiry through your paper, if of sufficient importance. I have a double cylinder 5 h.p. 3 port motor, normal speed, 750 r.p.m. The water is let into exhaust pipe just before it enters the muffler and between the muffler and motor are three 90 degree elbows, there being a double bend in the pipe giving it a hump that prevents water from getting into the cylinders. How much back pressure do these elbows cause? Is it sufficient to reduce the power materially? The muffler is enclosed in locker under transom. If exhaust pipe and muffler were enclosed in asbestos covering and the water piped outboard, would the muffler and exhaust line be cool enough? Gasoline tank is placed under same transom with no partition between. Can you suggest a way to avoid these elbows?

A. T. R., Boston, Mass.

[We do not believe the elbows at all necessary and an installation similar to yours is decidedly bad practice. In the first place with the exhaust line having only a very slight downward inclination, the danger of getting the water back into the cylinders is very small even though it is let into the line close to the engine. If you are afraid of it causing trouble, one way of remedying it will be to place a globe valve in the waterline near the place where it enters the exhaust pipe and thereby regulate the amount of cooling water which is allowed to flow in, the remainder going through the outboard connection. The valve may be used also to cut off the supply entirely a few minutes before stopping, thus leaving the exhaust line entirely free from moisture. If you find that by having both an outlet overboard for your water and another into the exhaust line does not allow sufficient water to flow into the latter to keep it cool, this may be remedied by placing a globe valve also in the outboard line and by manipulating the two valves any desired adjustment whatsoever can be easily effected and experiments tried as to the effect various amounts of water in the exhaust line has on the speed of the engine. We think you will find it considerable, especially if all the water is used. The elbows as you have them arranged also cause considerable loss of power. Another change that we might suggest is to place your muffler as near the engine as possible instead of under the transom, as you now have it, as we believe this will give you an increase in power also. We would not recommend the asbestos covering in preference to the water as it takes only a small amount of the latter to prevent heating.]

Waterproofing Canvas.

To the Editor of MoToR BoatinG, Sir:—
I was going to waterproof a lot of new canvas and ropes for two motor boats, but I was told that paraffine and similar materials will rot and shorten the life of canvas, etc. Is this true? Will you kindly take up this matter with your experts and let me know as soon as possible?

A. S., Beloit, Wis.

[Our experience has shown that paraffine as a waterproofing agent will not materially shorten the life of canvas, although it may, to a very slight extent. One way of applying the paraffine is to melt a quantity of it in warm gasoline, which has been previously heated by allowing the vessel containing the gasoline to stand in hot water and then painting the mixture on like ordinary paint. The gasoline will shortly evaporate, leaving the fibres of the cloth thoroughly saturated with paraffine, which will form a permanent and durable waterproof material, which is not affected by heat or weather. Canvas treated in this manner will remain waterproof and pliable for several occasions.]



Straightening bent propeller blades against a metal form with a rawhide mallet.

Straightening Bent Propeller Blades.

To the Editor of MoToR BoatinG, Sir:

Some time last spring you published several ways of straightening a bent propeller suggested by some of your readers. The accompanying photograph was then prepared for your approbation, but was never sent as I happened to be too busy at the time. The block was made from two blades, the third one only being bent. I first made a plaster cast, and sent it to a local foundry and got an A-I casting from it. The block has a hole through hub, and is used as an anchor when needed. Photo shows how the propeller is straightened with a rawhide mallet. In no case was it found necessary to rebalance after straightening. During the summer months this can be done in about one-half hour, as it is then easy to get under boat to take propeller off.

H. G. G., Peterboro, Ont.

results. The dynamo switch, of course, either connects or disconnects the dynamo from the entire circuit, charging those particular batteries which are thrown into the circuit by the lower set of switches. The push button connected to the voltmeter is used to ascertain the condition of that battery in use at any particular time.]

More Speed in a 22 Foot Runabout.

To the Editor of MoToR BoatinG, Sir:

We have a 22-ft. boat with a 16-20 engine, 18" x 27"-pitch 3-blade wheel. Boat was built from Mr. Bacon's 22-ft runabout plans which appeared in the March, 1911, number of MoToR BoatinG. Boat without engine weighed 750 pounds on scale, engine 287 pounds. We have been unable to get engine up to maximum speed of 1,150 r.p.m. About 800 r.p.m. has been her maximum in this outfit. We get about 15 miles per hour. The boat does not drag any water at all but leaves wake ironed out flat. She planes with nose up until stern just touches the water. Could we get more speed with a different propeller? If you think so, what would you suggest? Does a spark coil or any other coil give an alternating or direct secondary current? If the secondary current is run from the engine through ground wire to batteries, then to coil, does this help to run down batteries?

R. H. C., Hamilton, Md.

[We believe that a decided improvement in the boat's performance would be obtained by using a three-bladed wheel of 16 inches diameter and 20 inches pitch. Your engine should turn this propeller over at its rated number of revolutions and give you a speed of 1½ to 2 miles better than that at present. The fact that the boat does not drag at all, leaves such a smooth wake and planes so nicely is an indication that an increase in speed can be easily obtained without much increase in power with the proper propeller.

A spark coil, or, in fact, any other form of induction coil, using the ordinary form of vibrator, gives an alternating current. This is due to the fact that when the magnetic flux is increasing, a current of a certain definite direction is induced in the secondary winding, while when the flux is decreasing an induced current in the opposite direction is produced. Of course, this magnetic flux is present either of increasing or decreasing intensity, depending upon whether the primary circuit is either made or broken, causing the primary current to begin or stop flowing. When the timer circuit is closed it is the vibrator of the coil that either makes or breaks the circuit.

The secondary current flowing through the batteries in the ignition circuit can hardly be considered as tending to run down the batteries, inasmuch as the strength of the current or amperage is so very small in the secondary circuit.]

Horse Power and Propeller.

To the Editor of MoToR BoatinG, Sir:—

I have a heavy duty, single-cylinder, 2-cycle engine, 6" bore by 6" stroke rated at 360 r.p.m. Will you kindly inform me what b.h.p. this engine will develop, also what diameter and pitch of 3-blade propeller would be suitable and what speed this combination should give in a 30-foot V-bottom cruiser, beam 8' 4"?

R. H. V., Coronado, Fla.

[It depends upon so many factors such as condition of the engine, size and position of the ports, compression space, quality of the fuel, etc., that you will see that we are not able to advise you. However, comparing its power to the average engine of similar size and speed, we believe your engine should develop about 8 h.p. and for your 30-foot V-bottom cruiser, we would advise a three-bladed propeller 22" in diameter and 26" pitch, which should give you about 6½ miles per hour.]

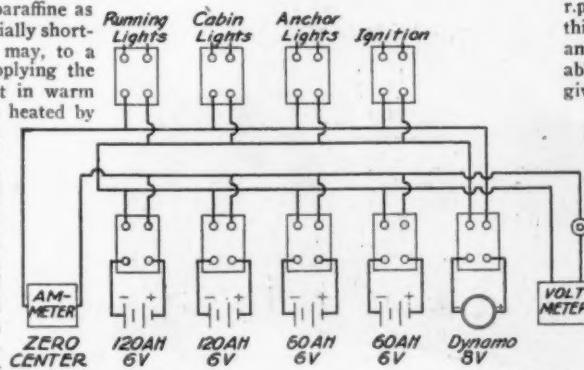


Diagram of connections for employing several sets of batteries.



Six Cylinder Howard Engine.

THE Howard Engineering Works, with offices in New York City and works at Harrison, N. J., have recently completed for a prominent racing man a special six-cylinder motor having a bore of 4 inches, a stroke of 6 inches and which has been run up to 2,700 r.p.m. This motor is so free from vibration that a coin has been stood on edge on the base of the engine while the engine was running without being displaced. On brake test it developed above 60 h.p.

Three cylinders are cast en bloc with integral T-heads and valve chambers, but with separate water-jacketed heads. The jacket heads are retained by special bolts, enabling them to be easily removed, which permits a uniform cylinder core and the thorough removing of core sand. The cylinders are made from special iron, and the two weakest points, the head and the flange, have received special attention and made unusually strong. The water jackets are tested under hydraulic pressure before and after machining.

The pistons are of extra length and made of the same kind of material as the cylinders. They are machined inside and out, annealed and finished to limit gauge by wet grinding. Special expansion rings which are ground on the bearing surfaces and sides and carefully fitted to the pistons are used. Oil grooves are provided for distributing the oil over

A Well Balanced 4" x 6" Machine Capable of Turning as High as 1800 R. P. M.

all wearing surfaces, and the pistons are accurately weighed and assembled in groups of corresponding weight, assuring perfect balancing.

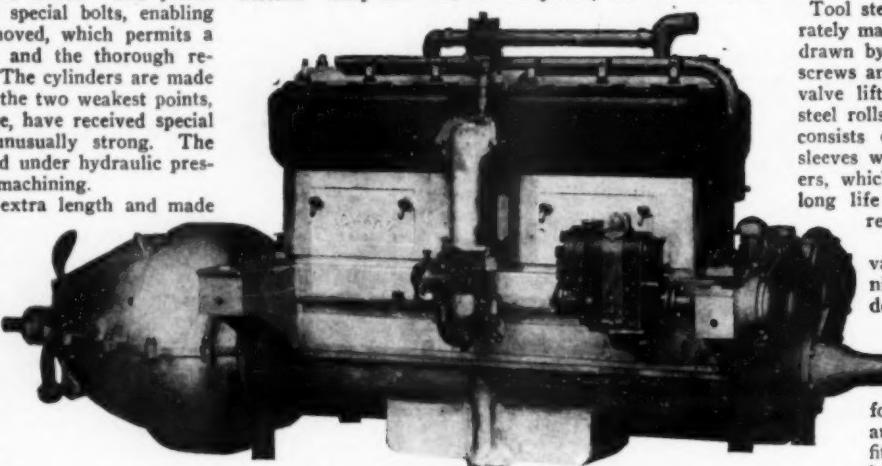
Hollow wrist pins, made from special steel and ground to size, are fitted in all Howard motors. They are held in the piston, which

is secured by a cotter pin, and special means for oiling is provided.

The crankshaft is forged from special steel of high tensile strength, toughened and hardened with a special heat treatment. The crankcase is made from the best aluminum alloy, when usually rigid and stiff. All bearings are carefully hand scraped to crankshaft. The connecting rod is made from drop forged steel, very strong, yet light. The upper end is bushed with bronze, which is renewable. The lower end is fitted with Parson's white bronze bearings, and the caps held in place with nickel steel bolts.

Tool steel cam shafts are accurately machined and may be withdrawn by removing the retaining screws and gear case cover. The valve lifters are fitted with tool steel rolls and the sliding surface consists of large hardened steel sleeves working in bronze retainers, which insures quiet running, long life and quick, inexpensive repairs.

The inlet and exhaust valves are made of special nickel alloy and have a double bearing. The angle of seat is 60 degrees, which gives a good opening and a clear passage for the gases. The gears are of special construction, fitted to taper shafts with keys and fine thread nuts. They have ample face and are cut by generating to insure quiet running.



Six cylinder, 4" x 6" Howard motor, 60 h.p. at 1800 r.p.m.

Hitchcock Marine Engines.

THE Hitchcock Gas Engine Company, of Bridgeport, Conn., have perfected the economy qualities of their four-cycle motors to such an extent that they are able to obtain an efficiency of about one-twentieth of a gallon of gasoline per horsepower hour in operating commercial motor boats. This company has been in the business for over

Four Cycle Motors Operating on Gasoline, Naphtha or Distillate.

twenty years, and their motors are in use in many waters in fishing, oyster and many

forms of commercial boat, as well as in small and medium size pleasure craft. They are extremely simple in their method of operation and have proved very successful on tests of continual running of eight hours a day for a long duration of time.

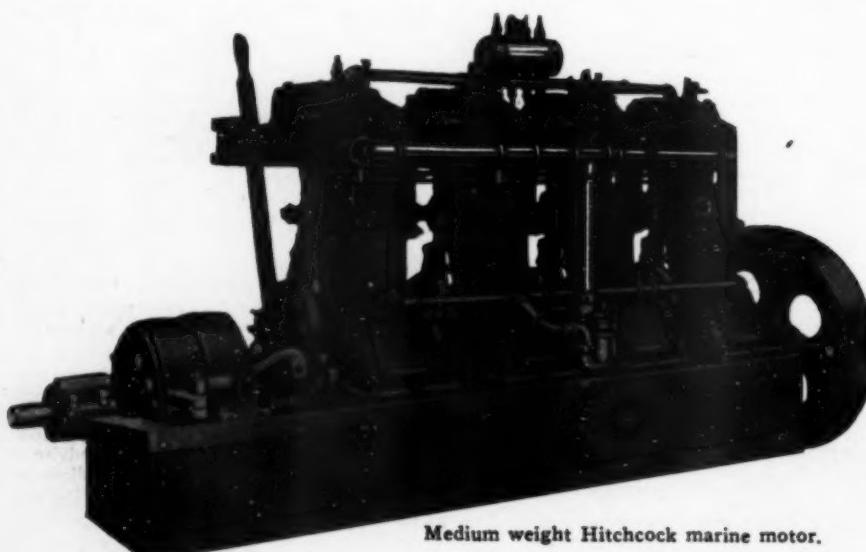
The latest development of the Hitchcock motor is the provision for running on kerosene as a fuel, in addition to gasoline, naphtha and distillate. These motors are built in sizes from one to five cylinders, 8 to 100 h.p., make and break or jump spark, and all of the four-cycle type.

The Hitchcock motors for the coming season will have no radical changes in its design, as the record for the past twenty years has proven its present design to be as near perfect as it is possible to make it, although a few refinements have been made.

Successfully passing the test for usefulness in commercial boats is one of its strongest points. Generally in this service, the motor is required in operation 8 or 10 hours per day continuously and together with the low fuel consumption of this motor makes it especially adapted for heavy fish and work boats.

The motors are well designed and constructed, very accessible, reliable, simple and low in price.

In order to determine the approximate horsepower of engines of various bores and strokes and of a different number of revolutions, this company has developed a unique horsepower computer which should prove of great assistance to those interested in this subject.



Medium weight Hitchcock marine motor.

New 1913 Eagle Engines.

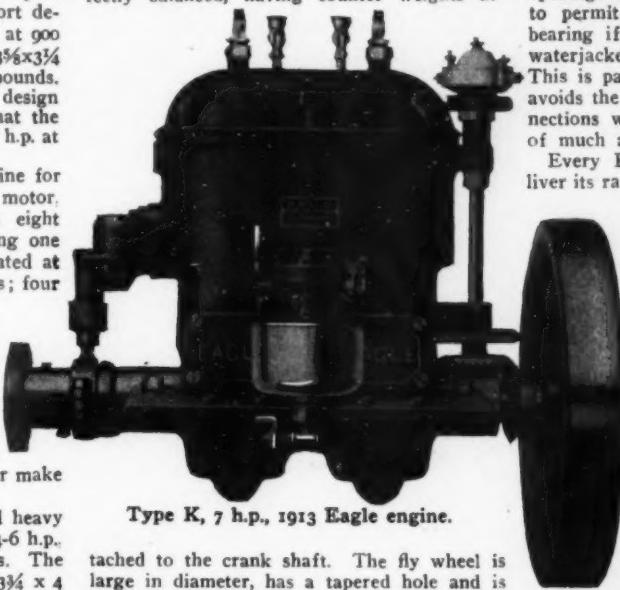
THE new Eagle 1913 models are a $3\frac{1}{2}$ h.p., single cylinder; a two-cylinder, 7 h.p. of the high speed type, and a single cylinder, 6-h.p. heavy-duty model. These three models are of entirely new construction, designed for business and sold at popular prices. The new medium speed model has a bore of $4\frac{1}{2}$ inches, stroke of 5 inches and designed to operate successfully at speeds from 500 to 700 r.p.m. The high speed models are of three-port design, the single cylinder rating $3\frac{1}{2}$ h.p. at 900 r.p.m. It has a bore and stroke of $3\frac{1}{2} \times 3\frac{1}{4}$ inches and weighs approximately 90 pounds. The two-cylinder model is similar in design and construction, with the exception that the cylinders are cast en bloc and develops 7 h.p. at 900 r.p.m. and weighs 136 pounds.

In addition to the above, the Eagle line for 1913 consists of a 6 h.p. high speed motor, $4\frac{1}{2} \times 4$ inches, weighing 175 pounds; eight models of medium speed type, including one make and break motor, 3×3 inches, rated at $1\frac{1}{2}$ h.p. at 650 r.p.m., weighing 95 pounds; four models, $3\frac{1}{4} \times 4$ inches, one, two, three and four cylinders, rated at about $3\frac{1}{2}$ h.p. per cylinder. These four models weigh from 212 to 483 pounds. In the medium speed types there are also three $4\frac{1}{2} \times 5$ inch sizes, two, three and four cylinders, rated at 6 h.p. per cylinder at 600 r.p.m. All of these are built with either jump spark or make and break ignition systems.

Model R Eagle engine is a combined heavy duty and medium speed type, rated at 4-6 h.p., 400-600 r.p.m., and weighing 240 pounds. The heavy duty line consists of one model $3\frac{1}{4} \times 4$ inches, rated at $2\frac{1}{2}$ h.p., 575 r.p.m., and weighing 160 pounds; two 5×6 inch models, one and two cylinders, 6 h.p. per cylinder at 450 r.p.m., weighing 340 and 555 pounds, respectively. This line also includes two $6 \times 6\frac{1}{2}$ inch models, rated at 7 and 15 h.p., respectively, at 400 r.p.m., and weighing 490 and 780 pounds.

Two New High Speed Models and One New Heavy Duty Motor.

The new 1913 models have an individuality that is all their own. They are high in power and light in weight; they are perfectly balanced, having counter weights at-



Type K, 7 h.p., 1913 Eagle engine.

tached to the crank shaft. The fly wheel is large in diameter, has a tapered hole and is fitted to a tapered crank shaft and secured by a large Woodruff key and a nut and lock nut, resulting in a perfect fit, causing the flywheel to run true and overcomes the possibility of its working loose. The cylinder heads on these models are separable and can be easily removed without disturbing timer or water

piping. Each engine is fitted with a noiseless bronze plunger pump of Eagle design and construction and is very powerful. This pump has a self-contained check valve of large dimensions to insure efficiency and long life. The eccentric is self-oiling and requires no special attention.

These models are furnished with hand hole openings to the crank case, sufficiently large to permit adjusting of the connecting rod bearing if found necessary. The completely waterjacketed exhaust is a new feature also. This is part of the cylinder casting and thus avoids the use of gaskets and water pipe connections which have always been the source of much annoyance.

Every Eagle engine is guaranteed to deliver its rated horse power when equipped with the proper size propeller. All cylinders, crank shafts, pistons, piston pins and piston rings on the 1913 models are ground to exact size.

The line of medium speed Eagle engines is not new and are well known. These engines were properly designed and well made in the beginning, consequently they have never required any radical change in their construction. They are sturdy, durable and compact, of the two cycle two port type and develop their full horsepower. This is the type of engine which is so extensively used by the United States government in both navy and light-house service where much depends upon the efficiency and durability of the power plant. They have also been successfully used for several years in fishing dories and working boats.

Exceptionally large crank shafts are provided with heavy flywheels, large diameter and extra long bronze bearings.

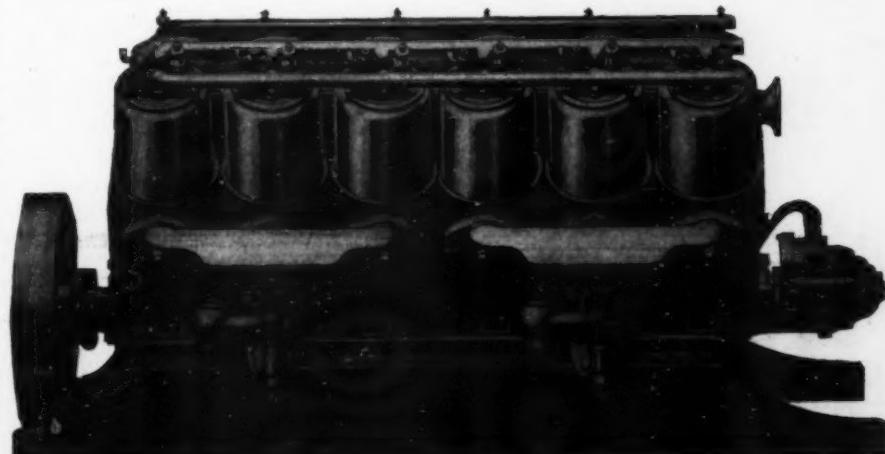
"R-V" Motors.

A Remarkably Light Weight Yet Strong and Powerful Two Cycle Motor.

facture, thus producing an engine which consists of a symmetrical, clean cut, neat in appearance and handsomely finished machine. Great flexibility is obtained, owing to the large portage and the short distances which the traveling gases must cover. A large range in speed can

be obtained, as the reciprocating parts are light but strong and the control quite remarkable. The water pump and magneto are driven by a silent chain, and no parts of the engine are subjected to heavy wearing strains or pressures. The crank cases are kept tight by means independent of the bearings, and ball bearings are used whenever possible.

All parts are automatically oiled by mixing the oil with the gasoline, with the exception of the center bearing on the four-cylinder engine.



Twelve cylinder, V-type, 160 h.p., 2 cycle, "R-V" racing motor; weight, 800 lbs.

R-V motors for marine use are built in one, two, three and four-cylinder vertical type, and six and twelve-cylinder V type and range from 10 to 160 h.p. All models have a bore of 5 inches and a stroke of 5 inches and weigh, complete, from 145 pounds for the 10 h.p., single cylinder model, to 810 pounds for the twelve-cylinder, V type, 160 h.p. model, which shows an average weight per horsepower from 5 to $14\frac{1}{2}$ pounds. These engines develop their horsepower at 1000 to 1100 r.p.m., and are highly efficient for racing purposes, as their extreme lightness, combined with their great strength, makes them especially adapted for this class of service.

As they do not have any valves, gears or cams, they are very quiet running. They are equipped with ball bearings and aluminum crank cases. The design is radically different from the ordinary type of two-cycle motor, and the greatest power for unit of cylinder capacity is obtained. Large ports are provided, which allow the exhaust gases to escape easily and the fresh mixture to enter quickly. The cylinder being well scavenged, the resulting mixture gives unusually high mean effective pressure.

Many useless parts have been eliminated and the compact design of the motor permits of a light weight machine which is simple in construction and reliable at all times. The working parts are of easy access and the liability to cause trouble has been reduced to a minimum. Great care has been exercised in the manu-

Grimm 4 Cycle Motors.

THE Grimm Mfg. Co., of Buffalo, N. Y., entered the 4 cycle motor field but a short time ago, and have just passed a very successful year, the sales for 1912, it is reported, nearly doubling those of 1911, which fact attests to the efficiency and popularity of the "Grimm" product.

The ease of access to all parts is noticeable, also the manner in which the crank shaft may be removed, it not being necessary to disconnect or disturb in any way the other parts. In looking over the castings the roomy water jackets, and thick cylinder walls, appeared very popular, in fact careful study has enabled the designer to decide just where the weight was needed and could be used to advantage without weakening any part or affecting the appearance or operation of the motor. The bearings also are die cast, which makes it an easy matter to exchange requiring but little loss of time. The company also manufactures reverse gears, which have several distinctive features and will at a slight additional cost, equip their motors with these, also bronze shaft and the make of propeller which you prefer.

"Grimm" motors are built in three sizes, 2 cylinder 6-8 h.p., 4 cylinder 12-16 h.p., 6 cylinder 18-25 h.p., and are designed to meet the demand of those desiring a medium weight, medium speed 4 cycle motor at a popular price. The accompanying cut shows a 4 cylinder 12-16 h.p. which is meeting with an unprecedented demand.

1913 Wonder Motors.

THE Wonder Engine which, as put on the market some ten years ago, has proven very popular and today many thousands are being used, not alone here, but distributed in all parts of the world where the motor boat is used. The company will discontinue the manufacture of their 2 cylinder, 4 h.p. and will add for 1913 business several new sizes including a 6 and 10 h.p. single cylinder. The single cylinder sizes will now be furnished in the 2, 3, 4, 5, 6 and 10 h.p. The two cylinder in the 6, 10, 12 and 20 and the three cylinder in the 9, 15 and 30, and the four cylinder in the 12, 20, 24 and 40. These the Wonder people furnish with equipment A, B and C. For 1913 the outfit C will be the solid wheel and reverse gear instead of a reversing wheel.

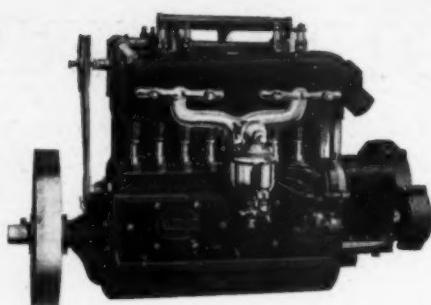
The smaller sizes are equipped with carburetor of their own manufacture and all larger sizes with Schebler carburetor and all sizes with exception of the 2 h.p. with elevated timer control driven by bevel gears and plunger pump of large dimensions, so no overheating. The 2 cylinder model recently added to their line has met with very great success for which it was designed. Light weight, smooth running, two cylinder motor. Simplicity, the same in this as in all other sizes has been the keynote. Another and one of the best known of the Wonder family is the 2 cylinder 10 h.p. which has a bore of 4" x 3 3/4" stroke.

This is recommended for boats of heavier construction and also when speed is an important factor makes a fine power for the average boat requiring this amount of power.

The new 6 and 10 single cylinder engines will be an addition to the Wonder line. Special mention they make with regard to new features now embodied in their construction and followed out in nearly all sizes now manufactured by them; large crank shafts machined out of a special hand forged carbon steel; large hand hold plate in base so adjustments may be easily made to connecting rod; water cooled exhaust, doing away with all piping and many other important features which their printed matter covers.

Their up-to-the-minute 1913 models are a development, rather than a departure from the first Wonder engine placed on the market years ago and all the good features retained and developed from season to season in the perfection of a perfect motor.

The prospects for a very successful season are very bright.



Four cylinder medium duty Grimm motor.

Kastrup Reversible Motors.

KASTRUP reversible four-cycle motors are built in seven sizes from 4 to 24 h.p., one, two and four cylinders. The two cycle models are built in four sizes from 3 1/2 to 24 h.p. one and three cylinders.

Connected with the cylinder and adjacent to its head is a small three way or T-valve housing containing a controlling outer inlet valve, a controlling inner inlet valve, a vertical vent opening and a relief valve. The outer valve is seated in a conducting pipe leading from the carburetor and designed to open automatically by suction when the explosive agent is to be delivered, but which at other times remain seated to prevent the escape of gas from the pipe.

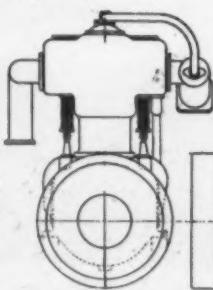
The charge then enters the cylinder through the inner or reciprocating valve, which valve is carried on a stem mounted in the valve housing and on the exterior end of which is a spring that holds this valve to its seat. The spring so holds the seat that the fire does not touch it, thereby avoiding pitting. Entering the combustion chamber the charge is exploded and as the piston makes a downward stroke it passes and uncovers an exhaust port through which the exhaust gases are discharged.



14 h.p. reversible 3" x 4 1/4" Kastrup motor.

Erd Motors.

THE Erd Motor Co., of Saginaw, Michigan, whose motors have been manufactured for 16 years, are one of the pioneers in the marine motor field. This company started in a very small way 16 years ago to build marine motors, and have four times increased their factory space, until now, they occupy one of the handsomest factories in the City of Saginaw. The Erd line of motors represents one of the largest lines of marine



Six cylinder 140 h.p. Harbeck motor weighing 3000 lbs. Length overall 108 inches.

motors manufactured in the United States.

What they call their standard type of Erd motors, are two cycle motors built from 3 1/2 up to 20 h.p. These are built in the following sizes: 3 1/2 and 5 h.p. single cylinder, 7 and 10 h.p. two cylinder; 12 and 15 h.p. three cylinder and 20 h.p. four cylinder. The company recommend them for family boats and fast runabouts, and sometimes, hydroplanes, and on account of the enormous power of these motors some remarkable records have been made.

Another type of Erd motor manufactured in the two cycles, is the Erd Special Featherweight motors, which the Erd Company recommend for fast family runabouts and racers of all kinds. They build the following sizes: 18 h.p. two cylinder, weight 200 lbs., in three cylinder 30 h.p., weight 250 lbs., in four cylinder 40 h.p., weight 310 lbs., and in 60 h.p. 6 cylinder, weight 395 lbs. This type of motor cannot be highly recommended, not only on account of its perfect design, and handsome appearance, but on account of its great horsepower and intense reliability. All copper and brass parts on the motor are nickelized, which with the dull black enamel, makes a very rich finish. The Erd Company recommends the 18 h.p. specially for fast runabouts and yacht tenders. This 30 Special, the 6 cylinder is used only in fast racing boats, and has proven its efficiency and power in racing events. What has long been desired in a motor of this type is long service and dependability, and the Erd Special Featherweight, has proven to hundreds of buyers that power, strength and lightness together with the greatest dependability can be contained all in one motor.

Harbeck Motors.

THE Harbeck Motor is a medium-weight, four cycle engine, designed for medium and heavy duty. There are two models, one of six cylinders and one of four, both having 7 1/2-inch bore and 8 1/2-inch stroke. Horsepowers ranging from 40 to 150 are available, depending upon the service for which the engines are required, the varying capacity being governed by factors of rotation, speed, etc. The engines are designed for a multiplicity of uses, including high powered, part-open boats, cruisers, yachts, commercial and work boats, fishing craft and ferries.

Firm in the belief that dead weight of metal is not necessary for strength, the designers have made the engine as light as rigidity and durability would permit, with the idea of enabling the purchaser to put the extra displacement into stout hull construction.

The designers have produced: An engine of symmetrical and well-balanced design, having a distribution of material such as to give proper strength and rigidity at the point of greatest strain and to eliminate the surplus use of metal at points where strains are not localized. Result, a motor which is light per h.p., and capable of delivering its full torque for an equally sustained period.

An engine that is clean in appearance and free from external pipes, rods and accessory connections, one designed with all its accessories, magneto, pumps, starting devices, controls, etc., placed in a pleasing, compact, accessible group.

An engine which runs clean, free from spouting oil, and yet having all the accessibility of an open-base motor and in which every bearing may be separately adjusted or replaced without tearing down the engine, or removing it from the boat.

An engine which, because of the refinement and lack of ponderousness in design may be installed in the most cramped locations and yet afford a great relative accessibility.

An engine having a system of carburetion and manifolding which permits of the greatest flexibility in operation.

An engine wherein the frictional surfaces are so worked out in regard to areas, and selection of materials, as to make the motor practically wear-proof, resulting in an ability to give long-continued, heavy-duty service. An engine wherein the reciprocating parts are balanced to a nicety and wherein the relation of all moving parts has been so adjusted as to give the smoothest operation. Vibration and noise are largely eliminated.

New Things for Motor Boatmen

The Maxim Silencer.

We illustrate the end view of the Maxim silencer to which we referred last month. This cut will serve to illustrate the manner in which the silencer operates, dissipating the energy of the exhaust gases by whirling or spinning without interposing abrupt resistance to their motion as in the usual form of muffler. The older method, it is claimed, dealt with what is termed the primary noise only, whereas the Maxim takes care of the secondary noise caused by the first rush of gas from the exhaust port in addition. This silencer is manufactured by Wilcox, Crittenden & Co., Inc., of Middletown, Conn.

* * *

The Smith-Ryan Automatic Bailer.

The Smith-Ryan automatic bailer is of simple construction and there are no moving parts to wear out; no adjustments to make and no float to become water logged. It can be taken from an old boat and used on the new. The cut shows the construction and principle of the bailer. Upon leaving the boat at night the valve A should be closed. The fibre washer B is screwed down tightly upon valve seat C, preventing any water from getting into the boat. When backing or running at extremely low speeds or at a wharf, the automatic valve D prevents any water from flowing into the bilge. This valve and its seat are ground, and the pressure of the water prevents any water from backing up K, and so into the bilge. A tube E is used to insure a positive flow of water by K, and the bars F act as strainers to keep out anything that would tend to clog the tube. It will be noted that the strainer end of the bailer is the forward end, and that as the boat moves along the water is forced back by the outlet K, creating a suction at this point, which draws out the water and oil in the bilge. Since the bailer works as a drain, not only all water but oil as well is drained out, leaving the bilge free and clean. The arrows indicate the flow of the water beneath the boat, H as well as the bilge water J. The bailer is intended for any boat that will travel six miles an hour, and starts work just as soon as that speed is attained. Owing to chips, etc., which are often found in the bilge, the makers advise shutting off valve A when leaving the boat at night. The price is \$4.50 and the manufacturers are the Smith-Ryan Boat Co., of Algonac, Mich.

* * *

New Kenyon Fender.

The L. R. Kenyon Co., of Waukesha, Wis., who are specialists in the production of motor boat tops and life preserving cushions have recently introduced a new fender for pleasure boats which, while occupying but a small space are capable of effectually guarding varnish and finish generally when rubbing or running into dock. They are made of heavy duty Kenyon duck with double top, permanently fixed loops and waterproof filling. Side fenders cost from 35c to 75c each while bow fenders are made in two sizes at 50c and 75c respectively. One of those little refinements which mean so much to the user is the adoption of an improved metal button fastener for Kenyon cushions, this obviates all possibility of a recurrence of the troubles experienced in the case of the flax twine button fasteners used hitherto and which, as readers will remember, were liable to rot and give way perhaps when most wanted. It should be noted that Kenyon cushions serve a double purpose, as they are designed to act as lifesavers, in addition to providing comfortable seats.



The Evinrude Detachable Rowboat Motor.

The Evinrude is a two-cycle gasoline engine with propeller and steering device so combined as to constitute a self contained power plant. The engine develops 2 h.p. at 900 r.p.m. and speed ranges from 300 to 1,000 r.p.m., giving a range of speed up to about 8 m.p.h. The outfit can be attached to any rowboat of ordinary size by simply tightening two large thumbscrews and is adjustable for depth and angle of stern and the motor, which is started by a turn of the flywheel, is reversible. No oil or grease cups are necessary, as the lubricating oil is mixed with the gasoline. Several minor improvements have been effected in the 1913 Evinrude, notably an alteration in the propeller protector, heavier castings, a muffler of new design and a new type of spark plug. The weight of the Evinrude is 50 pounds, it can be carried in a canvas case, and its price is \$70. The manufacturers are the Evinrude Motor Company, of Milwaukee, Wis.

* * *

Cupror.

Cupror is a metal which when buffed up, is said to possess the lustre of polished gold, and is consequently a suitable metal for marine usage, such as for motor boat fittings, etc., as it will not corrode, and can be kept clean and bright with little labor. It is not affected by sea water or air and occasional wiping with a cloth is all that is necessary to maintain its brilliancy. If allowed to become coated with deposits it only needs washing with soap and water. Cupror is sold in ingot castings, forgings, sheet, rod and wire, and is highly malleable, having a very high tensile strength. Tests showing the rod to have a strength of 93,000 lbs. to the square inch, and the wire, 20 B. & S. gauge, 138,500 lbs. to the square inch. Cupror metal spins and draws readily, having the requisite tenacity, or toughness, with ductility and needing neither lacquer nor plating. It is manufactured by A. S. Morss Company of Boston, Mass.

* * *

Esco Fire Extinguisher.

The Esco fire pump, recently bought by the Emmons Specialty Co. of Detroit, Mich., is instantly put into action by pulling out the handle, turning it once to left and pressing forward with the nozzle valve open. It holds nearly a quart of chemical and can be refilled as often as used. The chemical, it is said, will not spoil with age nor freeze, and is harmless to metal, paint or varnish or any kind of fabric. The pump is made entirely of brass, is handsomely finished and bears full operating instructions. It is supplied at a popular price.

* * *

The E. G. Engine Cleaner.

This device is intended to remove grit and dirt by a forceful spray of kerosene or gasoline. Engine parts that cannot be cleaned without practically taking down the motor may be easily reached with the nozzle. The mode of operation is to affix the rubber tube, with which the cleaner is furnished, to the curved pipe, place the other end in kerosene or gasoline and attach air line to straight pipe, then turn on the air. When the motor has been cleaned the operator should remove the pipe from the kerosene and dry with air. The price is \$2.00 and it is sold by the Emil Grossman Company, of New York.



The Bosch Adjustable Flexible Coupling.

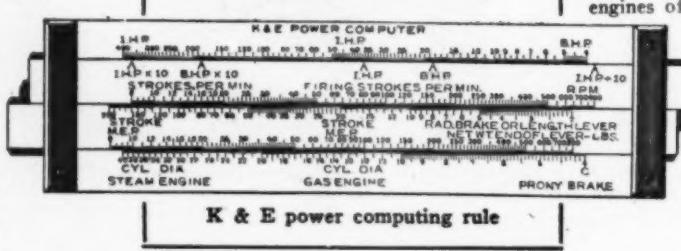
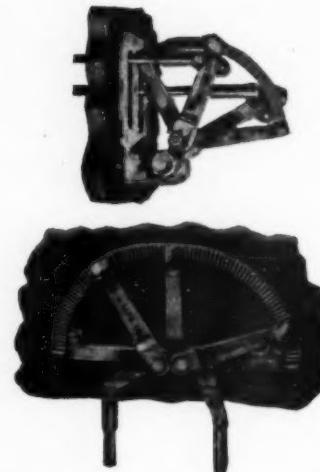
The Bosch flexible coupling permits the driving unit whether magneto, lighting generator or oiler, etc., to operate both out of center and out of line, thereby reducing the cost of installation, since the exactness formerly required in lining up the shafts becomes unnecessary. An added advantage is that it makes it possible to remove the magneto without disturbing the timing or, in fact, any part of the driving mechanism. It has now been found possible to go a step further still, and as a result, the Bosch adjustable flexible coupling has been put upon the market, rendering possible the adjustment of the timing after the magneto is in place and coupled to its shaft. The new coupling consists of a cone-shaped piece of steel attached to the armature shaft, terminating in a ring having diametrical fibre lined slots. To the driving shaft is secured a flange that carries a flat cross-bar consisting of a large number of fine spring steel plates or leaves. The cross-bar fits in the slots of the cone-shaped member. This laminated cross-bar has a marked spring action and permits the two members of the coupling to have a slight relative torsional movement, which absorbs the shock of the varying resistance to rotation of the magneto armature. Furthermore, the cross-bar has a slight bending or twisting movement sideways, permitting the two shafts to be slightly out of line. A vernier engraved on the stationary portion permits accurate regulation to any degree and on this account the magneto may be mounted on the motor without reference to the timing and the armature set in any position after the entire apparatus is fixed. It is manufactured by the Bosch Magneto Company of New York City.

Gray Controls.

The Gray reverse control is very strongly built and of handsome design. The lever brackets are solid brass, the rod, steel or Tobin bronze, as desired. Its appearance can be judged from our illustration. The cost is from \$12 to \$25 according to measurements. The Gray No. 3 control is designed for bulkhead when motor is placed forward. It is adjustably fitted to a polished plate in which there are slots for the control rods to pass through to the motor. The plate covers the hole in the bulkhead and gives a finished appearance and the adjustable quadrant enables connections to be easily made. The price including clips is \$4.00. Model 4 control is intended to be used when necessary to have the control flat against bulkhead. The levers are on the opposite side and in combination with adjustable ball cranks many difficult connections are easily made. The price is \$3.00. The makers are the Gray-Hawley Mfg. Co., of Detroit, Mich.

Hydrex System of Exhaust Silencing.

We illustrate the Hydrex sawed through certain lines so as to best show workings. The exhaust and the water go in slightly off-center which gives a whirling motion. This is with the object of eliminating the formation of eddy waves and friction. The exhaust gets to the point where it meets the water which comes down in a



continuous sheet and passing through this sheet it is rapidly cooled, and the heat being eliminated, the pressure, and consequently the noise is, it is claimed, absolutely overcome. The fitting of the Hydrex is a simple matter. It is manufactured by the Hydrex Silent Exhaust Works of New York City.

A New Flechter Carbureter.

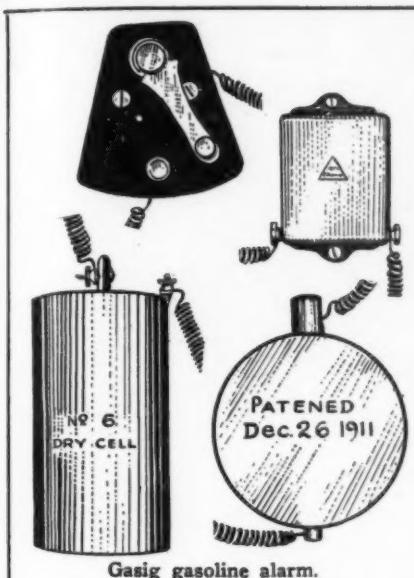
The new Flechter carbureter is of the central draft type with fixed gasoline jets. The strainer, float lever mechanism, gasoline inlet valve, etc., are of substantial design, though small and neat in appearance. The auxiliary air valve is made with an exceptionally long bearing, designed to minimize wear and insure longevity. There are two adjustments of the auxiliary air valve; these are located concentrically on the top of the instrument and are the only adjustments on the carbureter. They can be readily manipulated without the use of any tools other than the thumb and forefinger and remain as set until changed at the will of the operator. On account of these concentric adjustments, it is no longer necessary to reach underneath the carbureter to adjust the low speed air. An effective and simple priming device represents one of the features of this carbureter. The primer depresses a spun brass float in such a manner that the pressure is received in equal volume at all points of the circle. With this improved primer, it is said that the possibility of "tilting" or "dipping" the float is eliminated and starting on the first or second turn is made positive, regardless of weather conditions. The venturi tube is of such design that "loading" of the carbureter is made practically impossible. This is accomplished by a plurality of circumferentially spaced apertures formed in the tube, so located that a portion of each aperture is below the level of the bottom of the mixing chamber. The manufacturers are V. Flechter & Company, of New York.

A New Power Computing Rule.

The K & E power computing slide rule for computing power and dimensions of steam, gas and oil engines is designed to solve the equation

$\frac{33000}{\text{time taken}} = \text{h.p.}$ regardless of which quantity

is taken as the unknown, and also gives all data for finding speed, length of stroke, dimensions of cylinder, etc. The construction of the power computing slide rule is similar to that of the company's well known duplex slide rule, the body and slides being of the same thickness and held in position by metal end pieces. The rule is provided with the K & E patented adjustment by means of which the desired friction of the slides may be uniformly maintained. The face of the rule shown carries five series of special graduations; to be used in determining b.h.p., i.h.p., or principal dimensions of engines of any size and the method of using is fully described in the directions furnished with each rule. On the reverse face of the rule are engraved the A, B, C, and D scales usually found on the Mannheim slide rule. The power computing slide rule measures $7\frac{1}{4} \times 2$ inches and may be conveniently carried in the pocket. In sole leather case it costs \$7.00 and is sold by the Keuffel & Esser Co. of New York City.



"Gasig" a Gasoline Alarm.

Gasig is a device designed to give warning that the supply of gasoline is getting low by setting off an alarm which may be arranged to act at any given point. The outfit consists of a small, neat brass device, in which there is a specially-prepared float, 25 feet of waterproof wire, a neatly finished switch and a nickel plated annunciator. One dry cell battery will, it is said, do service for more than a year with ordinary usage. It is installed by drilling two $\frac{1}{8}$ -inch holes, one above the other, through the tank and soldering the float chamber on so that its lowest point is $\frac{1}{2}$ -inch below the lower hole. Connect up the wires and the outfit is ready for business. It may be attached to any part of tank so that it will alarm when you have sufficient gasoline for one mile or fifty. The manufacturers are the Gasig Manufacturing Company of Utica, N. Y., who sell this alarm at \$5.00.

The 1913 Mayer Carbureter.

The model K carbureter manufactured by the Mayer Carbureter Co., of Buffalo, N. Y., presents several features of interest. Both the main and auxiliary air intake have the same opening and form one pipe, and the opening being horizontal with the frame and facing the dash the chance of dirt being sucked in is greatly reduced. In order to eliminate any fluttering or jumping of the engine when the throttle is rapidly opened a specially designed dashpot has been added. The Mayer has only one adjustment, namely, the needle valve which may be adjusted from the bulkhead. There are two jets, one for low throttling and the other for high speed, the former, which is a permanent jet, is handled entirely by the main air channel. The second jet, which does not come into action until the throttle is opened or advanced, is operated by the needle valve. Either warm air or water (or both) is used for heating.

The New Ampco Distributor.

The Ampco is adapted for use on any internal combustion engine, whether stationary, marine or automobile, and for high or low speed. The distributor is made of Bakelite, a non-destructible, insulating material, which is claimed to be infinitely superior to hard rubber or any other similar material on the market. When advancing or retarding the spark, there are no wires in motion thereby reducing insulation troubles to a minimum. New Departure ball bearings are used throughout. A noteworthy point is that all screws and springs are off center, making sure that even when assembled by a novice it is properly done, whether in a shop or on the road. All moving parts are made of the best tool steel, properly tempered and ground. The Ampco is constructed to work equally well with any make of standard coil and is both compact and



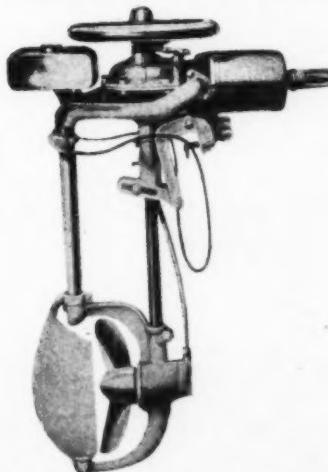
New Mayer carbureter.



Ampco distributor marine type.



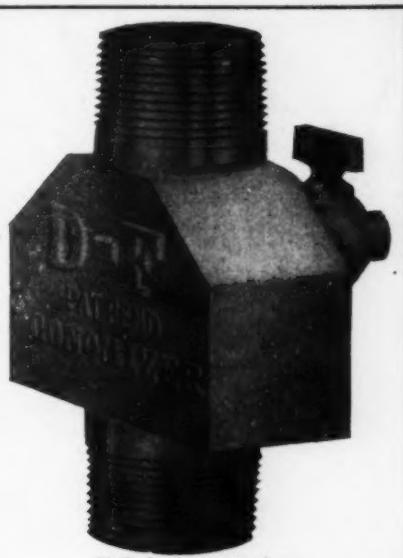
Details of an Ampco distributor.



New model Porto motor.



Morgan priming cups showing dust lids.



D-F fuel economizer.

simple. It is designed to insure perfect synchronism and to start the motor on a quarter turn. The parts are interchangeable, and the distributor is fully guaranteed. The prices of the marine type for motor boat engines are, two cylinder \$21.00, three cylinder \$23.50, four cylinder \$26.00, and six cylinder \$28.50. The manufacturers are the American Motor Parts Company of Philadelphia, Pa.

The D.-F. Economizer.

The object of the D-F Economizer is the saving of fuel in the operation of gasoline motors of all types. It is made of aluminum, is neat in appearance and occupies but a small space. With this device, the mixture, after passing through the carbureter, is drawn into the economizer and there changed into vapor by an arrangement of deflectors. This vapor, however, being too heavily charged with gasoline, additional air is introduced at the proper time and can be so regulated as to form, what the makers term, a perfect explosive charge. The sole agent is Walter J. Forbes of Boston, Mass., and the device costs from \$4 to \$9 according to size.

The Porto Motor.

The new model Waterman Porto motor, has the cylinder fitted with a copper jacket, by a process original with the company. Perhaps the most important improvement is the arrangement of a small thrust bearing inside the crank case where it is submerged in oil. This thrust bearing is designed to take the entire weight of the flywheel, crankshaft, driving shaft, shaft coupling and driving gear off the main bearing. No strain therefore is placed on the latter except the driving impulse of the motor. A new gear pump built into the forward end of the underwater gear case, has been included with the Porto outfit. This is lighter and more efficient than the plunger pump formerly used and offers no resistance to the water. An improved clamp design is an important feature. These on the new model Porto are pivoted on the cylinder flange, which is the center of gravity, and the lower end is adjustably connected to the tubing below the crank case so that all the driving thrust is removed from the crank case, in effect a truss construction. The spark plug is out of the way and protected by an aluminum case. The Porto is manufactured by the Waterman Marine Motor Co., Detroit.

The Morgan Priming Cup

The Morgan cups, while not actually new, are continually being improved in detail and have now developed to such a point that their manufacturers, the Morgan Manufacturing Co., of Newport, R. I., claim that all possible difficulties and troubles have been finally eliminated. Types suitable for various conditions are made, features being the steel ball valve, the insulated ring and the swing-over dust lids, the use of which is strongly recommended as they serve to keep dirt and water out of the priming cup and cylinder. Morgan priming cups are inexpensive, price varying with size and type.

YARD and SHOP

A Sturdy Sixty-Footer.

Rapidly nearing completion at the yard of the Essington Shipbuilding Co., stands one of the strongest, and in many ways the most unusual cruiser (two views of which appear in the heading of this page), that has ever taken shape on the ways of this well-known company. She is a sixty foot, hunting cabin boat, designed by J. Murray Watts, of Philadelphia, after the individual ideas of her owner, Mr. P. F. DuPont, of Wilmington, Del. Desiring a boat that should combine the strength of construction with grace and elegance and also shoal draft for use in the shallow waters of the Florida waterways, Mr. DuPont has attained his aim in "Ponce," the name selected for his new cruiser.

Beginning with the keel, "Ponce" is exceedingly heavy, and with sufficient fuel capacity, she should be able to withstand the severest storms of the western ocean. She measures 59 ft. over all, 55 ft. on the waterline, has an overall beam of 12 ft. and a draft of only 2 ft. 9 ins. The ribs, which are of clear white oak, are 2½ ins. x 2 ins. and are spaced 10 ins. from edge to edge, and only 4 ins. in the engine compartment, that vibration may be reduced to the zero point. Upon these frames are fastened white cedar planking 2 full inches thick, while the ceiling and deck carlins are correspondingly heavy.

The engine, a Harris 4 cyl. 60 h.p. machine, will rest on a base consisting of four pieces of white oak, 6 ins. x 6 ins., extending athwartship to the outer skin of the boat, and two fore and aft pieces, 6 ins. x 8 ins. The motor will turn a 34 in. propeller blade set at a 44 in. pitch, 500 revolutions per minute, and drive the boat at a speed of about 12 miles per hour. There are three distinct ignition systems, a make and break, a high tension Bosch dual system, and dry batteries. The tanks for the fuel will have a capacity of 316 gallons. One hundred gallons of this will be carried under side seats on the flush after deck, while the balance will be carried forward. The fresh water tank, containing 173 gallons, will also be located forward.

Hydroplane's Remarkable Trip.

Not very long ago a little 20-foot hydroplane, owned by the H. L. F. Trebert Engine Works, of Rochester, N. Y., performed a feat that is worthy of more than passing notice. Powered with a 100 h.p. piston valve V-type motor, this little speed craft ran from Rochester to Alexandria Bay on the St. Lawrence and back under her own power. The remarkable feature of the trip was the fact that all the way the hydroplane was bucking the severest sort of weather. A gale whipped the lake into anything but ideal "going" for a frail craft of this sort, yet her engines never faltered from beginning to end, which is certainly a tribute to the consistent dependability that the makers claim as their product's attribute.

Bremer-Wilson Moves.

The Bremer-Wilson Mfg. Co., of Chicago, has been compelled by increase of business to seek larger quarters. They are now located at 1475 Michigan Boulevard, where much augmented facilities will enable them to take even better care of their many friends than in the past.

Bayonne-Doyle Consolidation.

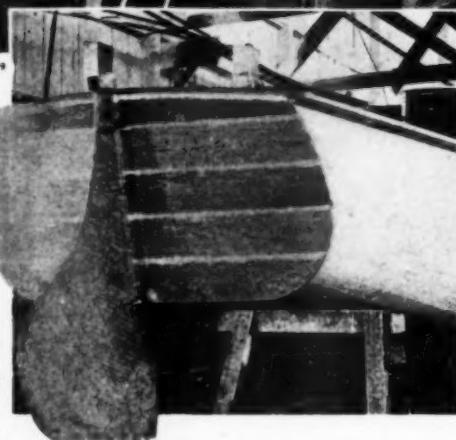
The amalgamation of the M. I. Doyle Co. and the Bayonne Launch Co., was announced in the last issue of MOTOR BOATING, since when several details of the consolidation have been announced. Mason I. Doyle has been retained by the Bayonne Launch Co. as secretary and general manager. The organization will continue to manufacture the full line of Doyle "V" bottom boats and will also build their complete line of cruisers and work boats as heretofore. An office and show room will be maintained at 50 Church Street, New York City. This is the office formerly occupied by the M. I. Doyle Co.

A Sixty-Mile Boat.

The Smith-Ryan Boat and Engine Co. inform us that they have contracted to build for J. W. Connors, commodore of the Motor Boat Club of Buffalo, N. Y., and owner of the Courier and Inquirer newspapers, a British International racer having a guaranteed speed of sixty miles per hour. The boat is to be a forty footer.



Bow view of "Ponce," a shoal draft cruiser, now being built for P. F. DuPont, of Delaware.



Stern view of "Ponce." Note the shallow draft construction.

New Association Formed.

Believing that the time has arrived for an organized promotion of the motor boat industry in the Middle West, several well-known manufacturers have formed the Marine Manufacturers Association. One of the organization's prime objects will be to give Chicago an annual motor boat show. A committee has been appointed to secure a lease of the Coliseum for the last week in February, 1914. An endeavor is being made to have the national association handle the Chicago show, but if it decides not to do so, the M. M. A. will put on the event. The charter membership of the Marine Manufacturers Association includes the Fairbanks, Morse & Co., B. Carpenter & Co., Valentine & Co., The Erd Motor Co., Valley Boat & Engine Co., H. C. Doman Co., Red Wing Motor Co., Auto Engine Works, Rippley Steel Boat Works, H. Lippert, W. D. Beauvais, Barbour Metal Boat Co., and others.

Gray "Get-together."

The Gray Motor Co. makes a habit of getting its factory foremen together to discuss "shop." It is found that these meetings do much good in instilling enthusiasm into all concerned. The last meeting in 1912 was a notable affair, for which the company provided a turkey dinner. When it is understood that the factory force includes 28 foremen, with a general manager, factory manager, designing engineer and production clerk, the need of "getting together" is apparent.

Chadeloid Wins.

The Chadeloid Chemical Co. has once again had the status of its Ellis patent No. 714,880 upheld by the courts. On January 31, 1913, the United States District Court

for southern New York granted the above mentioned company a permanent injunction against the Phoenix Color Works and David Freed to stop them from selling to others to be combined by them the several ingredients of the compound covered by the terms of the Ellis patent. The preparation in question is, as every motor boat owner knows, a paint and varnish remover.

Champion Makes the "AC."

In the February issue of MOTOR BOATING, the product of the Champion Ignition Co. was referred to as the "Champion" spark plug. This, of course, was an error, as this company's plug is known as the more regrettable as above on the market.

Speedwells in the Far East.

Two 70-foot motor vessels were recently built at Kowloon, Hong Kong. Equipped with 100 h.p. Speedwell marine engines, these boats made the trip to Manila under their own power. The voyage of 636 miles was made without a stop. The Gas Engine & Power Co. and Chas. Seabury, Consolidated, of Morris Heights, N. Y., builders of the Speedwell engines, believe that such feats as the above do much to impress on shipowners the reliability and practicability of internal combustion engines for marine work.

Concerning the Coyne Wheel.

We are in receipt of an interesting letter from the engineer in charge of the San Francisco police boat, which was lately equipped with a Coyne wheel. As the matter is of general interest to the motor boating fraternity, we quote the salient portions of the letter: "The length of the boat overall is 45 ft. 9 ins. The beam is 9 ft. 8 ins. and the draft 4 ft. 8 ins. just forward amidships; the type of boat is peculiar having a torpedo stern sitting on top of water extending forward over one-third of total length, being considerably down at the head."

The facts about the Coyne wheel are as follows: Diameter, 36½ ins.; pitch, 44 ins.; blade area, 115 sq. ins. in each blade, or a total blade area of 460 sq. ins. Speed of boat over three-mile course, conducted by Capt. W. A. Rasmussen (and myself in charge of engine) was 11.61 miles per hour. This was done with several interferences, taking boat from her course twice, and heavy swells from ferries interfering materially with speed, so that it is safe to say she can make 12 miles per hour on smooth water with no interference. The boat backs exceptionally fast with the Coyne wheel, and turns in a very small area."

How to Use Marine Glue.

L. W. Ferdinand & Co., of Boston, furnish some interesting data in regard to the proper use of their Jeffery's marine glue. First of all if either the oakum or cotton caulking or the seam is damp when the glue is applied, as soon as the sun shines on the deck, the heat will turn this moisture into steam, which will force the glue up over the edge of the seam. Second, in paying the seam, the ladle should be held at least an inch from the deck, as, if the ladle is held on the seam or close to it, a quantity of air will be carried in with the glue and be unable to escape. This will cause air bubbles, which in hot weather will force the glue over the edge of the seam, leaving it hollow and unsound. The seams should be absolutely dry and clean before the glue is run into them. If the glue is applied to old work, the old material should be dug out perfectly clean. Whatever adheres to the sides should be dug off with a case knife."



"Jonah," a trim little cruiser owned by Richard Hutchinson, of Boston. The boat is 38 feet long, 7 feet 9 inches beam, and a 30-45 h.p. Sterling engine drives her 16 good miles an hour.

A British Racer.

Charles Jarrott, the well-known British motorist, is about to take delivery of a 21 footer that was especially designed for racing at the Monaco motor boat meeting, which begins on April 1. The hull of this boat was designed by Cox & King; it was built by Saunders, of Cowes. The engine was designed by Mr. Costalen, of Sunbeam fame, and was built by the Sunbeam Motor Co., Ltd., at their Wolverhampton plant. Bosch magneto and Claudel-Hobson carburetor are fitted. Mr. Jarrott, who first achieved fame as a driver of racing cars, will make his debut as a contestant in motor boat races by driving his new racer at Monaco.

New Johns-Manville Offices.

The H. W. Johns-Manville Co. have opened a new branch office in Salt Lake City which will materially facilitate the handling of their business for that section of the country. This company also announces the removal of their Newark office to 239 Halsey Street, in the heart of the city's business center, with a floor space of 4,000 square feet.

Lackawanna Company's Meeting.

At the annual meeting of the stockholders of the Lackawanna Mfg. Co., of Ballston Spa, N. Y., the old board of directors were unanimously re-elected as follows: Francis G. Hall, John R. Hall, Wm. A. Lockwood, of New York City, and Ralph H. Davidson and W. H. Namack, of Ballston Spa. Francis G. Hall was re-elected president and R. H. Davison secretary and treasurer. The company reports an increasing business, with a good outlook for the coming season.

New Ferro Distributors.

Harry L'Hommedieu, marine engine dealer in Buffalo, is now looking after the interests of the Ferro Machine and Foundry Co. in that city and the surrounding territory. M. C. Hutto has been appointed distributor for Ferro engines in northeastern Florida, with headquarters in Jacksonville.

Lamp Company Changes Hands.

The Superior Lamp Mfg. Co., of New York, is now controlled by Harry Futterman, Myer Futterman and Abraham Futterman, of New York City, who manufacture a complete line of marine lamps, horns and metal stampings of all descriptions.

A Law Suit.

B. Morgan, of Newport, R. I., has brought suit against the Champion Spark Plug Co., of Toledo, Ohio, claiming infringement of his Priming Cup patent. Suit has also been brought against the 35% Automobile Co., Smith, Haynes Co., Auto Supply Co., and others, all of New York City, for the same infringement relating to priming cups.

Increased Equipping Facilities.

Owing to the increasing demands of the trade within recent months, the Times Square Auto Co. has been forced to extend its business in order to take in all standard types of marine equipment, from magnetos down to boat hooks. In fact, they now carry everything in stock that pertains to the thorough equipping of a motor boat, with the exception of hulls.

Curtiss' Flying Boat in Austria.

Through Louis Paulhan, the Curtiss Aeroplane Co. has recently sold to the government of Austria, one of the latest models of the Curtiss Flying Boat. Mr. Curtiss' Flying Boat has won him the distinction, for



The "Phirenger," designed and built by the Defoe Boat & Motor Works, of Bay City, Mich.

the second time, of receiving the Collier Trophy, awarded annually for the greatest contribution to the advance of aviation.

Gray Motors in Larger Quarters.

In order better to handle the rapidly increasing marine engine business in New York and adjacent territory, W. C. Disbrow, Jr., New York representative for the Gray Motor Co., has moved to larger quarters at 71 Cortlandt Street. By making this move, Mr. Disbrow has acquired an excellent location, with ample floor space for displaying a complete line of Gray motors. He also has a thoroughly equipped repair shop.

Carburetion Discussed.

The carburetion question was settled for all time at the annual meeting and booster dinner of the Rayfield Sales and Service departments of the Finsen and Kropf Mfg. Co. Carburetion in all its phases, from the gasoline tank to the exhaust pipe, was thoroughly discussed and with such enthusiasm as bodes well for future Rayfield sales.

High Speed Runabout "Cupid."

Edward Hatch, Jr., of New York City, has recently had installed at the Emerson Engine Co.'s plant at Alexandria, Va., a 200 h.p. eight cylinder, 7½x8, four cycle, special motor in his forty-foot runabout "Cupid." The hull was designed by Dr. Miller, and built by Buckhout, of Poughkeepsie, who turned out the twenty-six foot "Emerson."

The "Cupid" has had her trial trips and has been accepted by Mr. Hatch, as she has exceeded in speed the requirements which he exacted from the Emerson Co. The "Cupid" is one of the fastest runabouts in this country, having made, over the Government mile on the Potomac, on repeated trials, 35.6 m.p.h.

Her frame is of oak, steam bent, as are her stringers and keelsons. She is planked in mahogany and finished bright. The highest grade of construction has entered into the boat throughout, tape having been laid between all the planking and despite all the driving that has been given the boat at high speed, in many cases in heavy seas, she has never leaked a drop.

A New De Foe Cruiser.

The "Phirenger" designed and built this season by the Defoe Boat and Motor Works of Bay City, Mich., is a 55-footer with a beam of 11 ft. and a draft of 30 in. Though of comparatively shallow draft, she is a heavy weather, deep sea cruiser.

The frame is solidly and strongly constructed of white oak throughout, with 1½ in. Louisiana red cypress planking, and the hull is sheathed below the waterline with copper as a protection against the teredo worm of southern waters.

The power plant consists of two heavy duty, four-cycle Stork motors, driving twin propellers, developing a regular cruising speed of ten miles per hour. The motors are located amidships. All controls are carried to the bridge deck, and run on starboard and port sides of steering column respectively, so that each motor is controlled separately by the pilot. The bridge deck, being dropped over the motor-room, gives the engine-room slightly less than full head room, but the head room throughout the remainder of the boat runs from 6 ft. 1 in. to 6 ft. 3 in. The engine-room is finished in white enamel and its floor is covered with blue and white linoleum. A portion of the fuel is carried in the engine-room in heavy galvanized iron tanks placed in drip pans to drain overboard. A further storage tank of 200 gallons capacity is placed under the after deck. The starboard motor drives a 12-volt dynamo, which in turn charges storage to provide for a full system of electric lights.

Trade Literature Received**New Ferro Catalogue.**

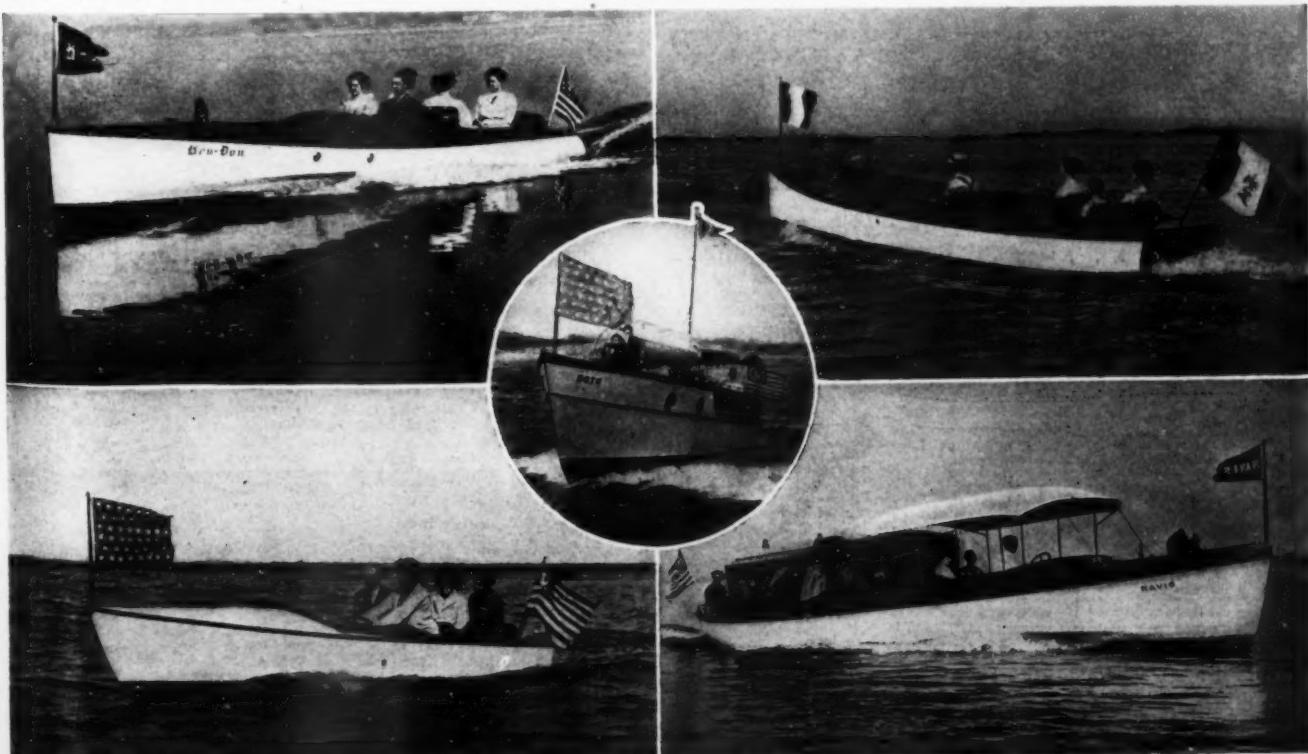
The Ferro Machine & Foundry Co., of Cleveland, Ohio, sends us a copy of their 1913 catalogue. Artistically bound in light gray paper, this little booklet gives in concise, tabulated form, exhaustive information in regard to the Ferro line of marine engines. The text is supplemented by numerous illustrations, both half-tone and line cut. Altogether the catalogue is a very satisfactory piece of work and of interest to all motor boatmen.

Kahlenberg Catalogue.

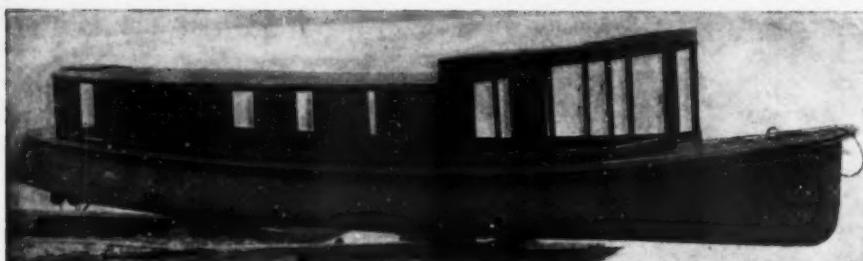
Kahlenberg Bros., of Two Rivers, Wis., are issuing a new catalogue covering their lines of marine engines. From every point of view this little booklet is excellently gotten up. The binding is of dark brown paper and the typography is all that could be asked. The text and numerous illustrations are mutually enlightening and cover the subject treated of very thoroughly.

The Timely Stitch.

The Michigan Steel Boat Co., of Detroit, is sending out a postal card under the heading "A Stitch in Time Saves Nine" and calling attention to the value of the old adage in dealing with your motor boat, as regards the timely "lick o' paint."



Racine-Truscott-Shell Lake Company's boats under two flags and on the waters of many states. Incidentally the craft shown represent several distinct and widely divergent types.



Ripley steel boat, for use on the shallow rivers of Arkansas.

The Buffalo Book.

The Buffalo Gasoline Motor Co., of Buffalo, N. Y., is issuing a new and enlarged descriptive booklet covering their line for 1913. In the forty-four pages, which make up the pamphlet, there are full descriptions of all this company's familiar line. Needless to say, the booklet is voluminously illustrated. Motor boat enthusiasts of every degree will be interested in this publication.

Mississippi Association's Year Book.

The Mississippi Valley Power Boat Association sends us its year book for 1912-13. In addition to the obvious organization information, this little booklet contains much of general interest.

When Motors Are Trumps.

Trump Bros.' Machine Co., of Wilmington, Del., send us a copy of a little brochure on their Pilot line of marine motors.



Wilmarth & Morman heavy duty reversing propeller.

A Florida Guide.

Dodd, Mead & Company send us "A Guide to Florida," by Harrison Rhodes and Mary Wolfe Dumont. It is a fat little volume of some 450 pages, bound in red cloth and between the covers may be found a veritable compendium of every sort of information concerning the winter resort par excellence of the eastern coast. Chapters are devoted to the history and antiquities, topography, climate and sports. Ample descriptions of the various places and sections are given and there are many illustrations. What makes the book unusually interesting to the motorboater is a chapter detailing the inland route from New York to Florida and giving much information as to what the motor boat enthusiast will find to do after he reaches the "Land of Flowers." The price of the book is \$2.25 net.

Maximotor Book.

The Maximotor Makers of Detroit are issuing an attractive little booklet describing their product in its application to marine uses. The text is concise and clear and there are numerous half tones and line drawings to amplify the written word.

Automatic Catalogue.

The Automatic Machine Co., of Bridgeport, Conn., have forwarded to us their new catalogue in which the "Automatic" line of marine engines for 1913 is very fully and clearly described. The text is ample and there are numerous illustrations, both of complete engines and of parts, making the booklet a very satisfactory exposition of the subject in hand.

Kenyon Literature.

The R. L. Kenyon Co., of Waukeahs, Wis., send us some very interesting booklets relating to the Kenyon system of "Take Down" houses and camp equipment. For the man who desires to get "close to nature" without sacrificing all the comfort of a fixed abode, these temporary homes are admirable. They may be had in almost any size from the simple shack of one room to elaborate "knock down" palaces. The man with a motor boat and one of these Kenyon houses on the bank of a navigable stream has every requisite for the most delightful vacation that could possibly be planned. In addition to the house itself, the Kenyon company can supply all the necessary equipment for making the temporary shelter a real home.

Mullins Book.

The W. H. Mullins Co., of Salem, Ohio, send us their new catalogue, covering their well known line of pressed steel boats. In the sixty odd pages of descriptive matter between the lithographed covers of this little book, there is a very thorough exposition of the whole art of boat building, from the motorboater's point of view. In addition there are descriptions of the power plants used in various Mullins models, as well as minor accessories to delight the true motor boat enthusiast.

W. & M. Book.

The Wilmarth & Morman Co., of Grand Rapids, Mich., are issuing a new catalogue, descriptive of their line of reversing propellers. The text is full enough to be easily comprehended and numerous illustrations serve to bring out the various points to the best advantage. A pleasing cover in two colors makes the booklet attractive as well as useful.

Wicker-Kraft Catalogue.

The Wicker-Kraft Co., of Newburgh, N. Y., has just brought out a new catalogue of their extensive line of furniture, etc., for motor boats. All sorts of chairs, couches and other interior fittings, especially designed for use on boats is pictured and described. Among the many interesting things shown, the life saving chair, with its life preserver tucked snugly and conveniently away under the seat, deserves special mention.

Calendar.

March 29 to April 5. Montreal, Canada, Motor Boat Show.

March 31 April 4 Southern Championship Regatta at St. Augustine, Fla.

April 1 to 15. Monaco Motor Boat Meeting.

June 7th. Philadelphia to Bermuda, 719 nautical miles. Yachtmen's Club of Philadelphia.

June 21. New York to Block Island, 100 nautical miles. New York Athletic Club.

July 3-5. Regatta of Red Bank Motor Boat Club, Red Bank, N. J.

July 4. New York to Albany and return, 235 nautical miles. New York Motor Boat Club.

July 12. New York to Cornfield Reef and return, 185 nautical miles. Colonial Yacht Club.

July 27-August 2. Perry Centennial Carnival, Put-In-Bay, Lake Erie.

August 16-22. Associated Yacht and Power Boat Club Carnival, Chicago, Ill.

The Illinois Waterway.

The Rivers and Lakes Commission at Chicago, Ill., is distributing a little pamphlet entitled "The Illinois Waterway" and intended as a guide for navigators from Lake Michigan to the Mississippi River, via the Chicago Sanitary and Ship Canal, the Illinois and Michigan Canal and the Illinois River. Motorboatmen proposing to take this trip or any part of it will find the pamphlet, which is being distributed free, extremely useful.

Valve Folder.

The Monarch Valve Co., of Brooklyn, N. Y., is sending out a folder describing their various products, including the Monarch float feed carburetor, in its application to marine work.

Reliance-Rochester Card.

The Hall-Gibson Co., of Rochester, N. Y., is sending out a postal card descriptive of the Reliance-Rochester steering control and containing a picture of the Warrell C., a middle western speed marvel, built by the Milwaukee Yacht & Boat Co., and using the Reliance control.

Mechanical Devices Catalogue.

The Mechanical Devices Co., of Watervliet, N. Y., are just issuing a new catalogue of their marine hardware and motor boat specialties. Adjustable stuffing boxes, flexible shaft couplings, shaft bangers, etc., are among this company's leading lines. A number of new devices will be found in this year's catalogue, which with an illustrated folder of practical information regarding motor boats.

New Sterling Catalogue.

The Sterling Engine Company, of Buffalo, N. Y., sends us its 1913 catalogue, an attractive publication with a colored cover. Typographically the booklet is very satisfactorily gotten up and the ample descriptions, ill-illustrated by half-tones and sectional views in line, of Sterling products makes the whole publication extremely interesting to anyone having any affiliation with marine sport.

Fears' Folder.

The Fears Motor Company, of St. Louis, Mo., is issuing a little folder covering its well known product. In spite of its small size the little leaflet is chock full of information regarding the Kastrup reversible 4-cycle engine, as well as their 2-cycle engines, of which a description is given elsewhere in this issue.



Cushions and draperies by M. W. Fogg, as installed in an Elco-de-luxe cruiser.

The "Polliwog."

On this page there is a picture of a little boat known as the "Polliwog," owned by G. Warren Sander, of Anchorage, Mich. This little-craft is 16 feet over all and has a beam of 4½ feet. Her speed is 8 miles an hour, which is remarkable in view of the fact that it is turned up by a little 2 h.p. Buffalo engine.

W. & M. Propellers.

The Wilmarth & Morman Co. announce that they have devoted much time and money to the development of their new heavy duty reversing propeller. No less than a dozen of these outfitts up to six feet in diameter, were installed during 1912 and the manufacturers tell us that they have not received a single complaint. The hubs and shells of these wheels are guaranteed against breakage through striking any obstruction. The blades are guaranteed to be as strong as solid wheels of corresponding size. As the blades are interchangeable, it is not necessary to purchase a new wheel when a single blade is broken. The makers tell us that both blades and shells are made of the best bronze obtainable, while the hub is of the well known Monel metal.

A Rippley Boat.

On this page is a picture of a very interesting steel boat built by the Rippley Steel Boat Co., of Grafton, Ill. The boat, which was delivered to the Kimball Lumber Co., of Arkansas, is 48 feet long and has an 8 foot beam. The hull is constructed of 10 galvanized steel plates with three-inch channel steel ribs about 12 inches apart. The boat is made with a semi-tunnel the draft of which is about 2 feet. She is powered with a 30 h.p. Lamb engine, turning a 36-inch wheel and is capable of making 14 miles per hour. This craft will be used for hauling logs, carrying passengers and freight and in other utility work. Her ability to run in very shallow water, due to the semi-tunnel construction, makes her invaluable in the small streams that she will be called on to navigate.



The "Polliwog," which manages to do 8 miles per hour with a little 2 horsepower Buffalo engine.

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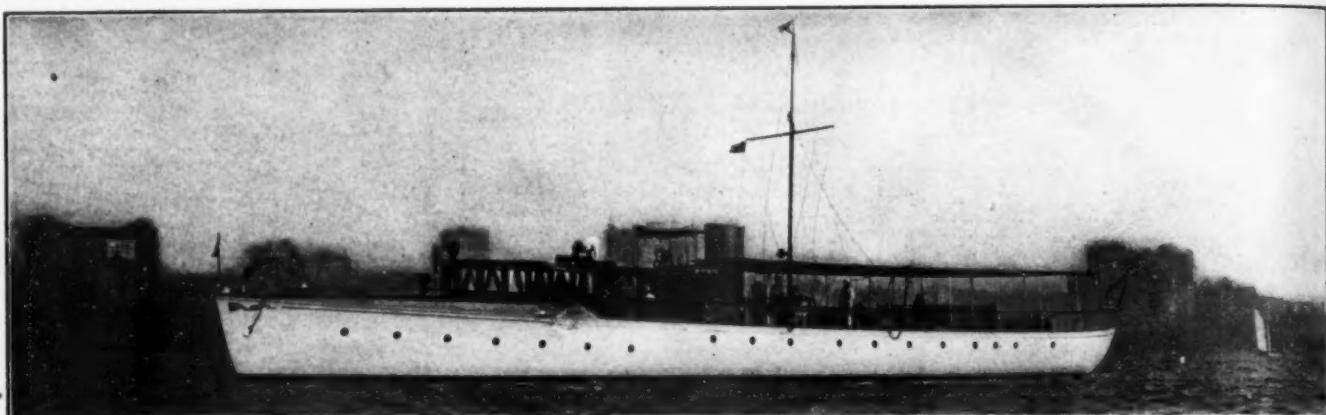
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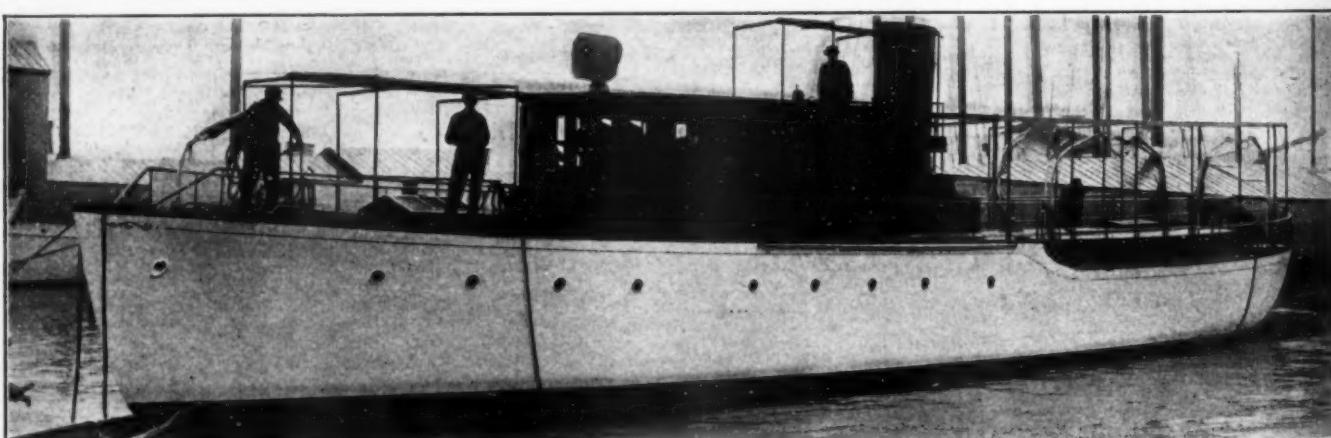
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We have a complete list of all steam and power yachts, auxiliaries and houseboats available FOR SALE and CHARTER
A few are shown on this page. Plans, photographs and full particulars mailed on request



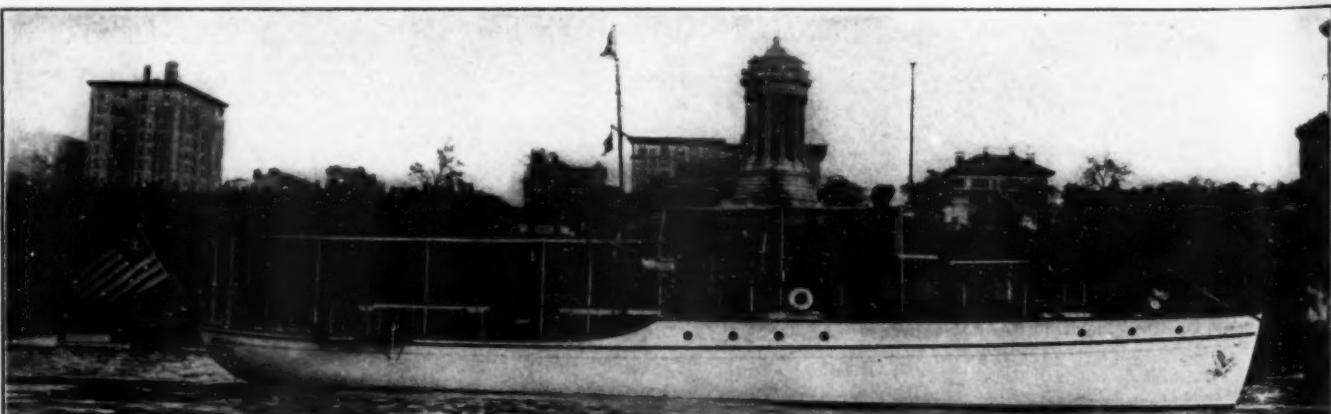
No. 885.—For Sale or Charter—Exceptionally handsome, fast, steel twin screw cruising power yacht; 118 x 16.6 x 5 ft. Built 1910, from our design. Speed up to 18 miles; two 300 H. P. Craig motors, three double staterooms, main and dining saloons, two bathrooms, electric lights, etc.; handsomely finished and furnished. Probably the most desirable proposition ever offered in a large gasoline yacht. Apply to Cox & Stevens, 15 William St., New York.

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No. 961.—For Sale—Very seaworthy, twin screw, cruising power yacht; 90 x 17 x 4 ft.; recently built by Lawley from our designs; speed 12-13 miles; two 60 H. P. Craig motors; large deck dining saloon, three staterooms, bath, two toilets; independent electric lighting plant, hot water heating system, etc. Price very attractive. Cox & Stevens, 15 William Street, New York City.

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No. 1532.—For Sale—Most desirable 75 ft. power yacht available; twin screw; built 1911; speed 12-14 miles; two 30-40 H. P. 4-cyl. 4-cycle motors. Exceptional amount of accommodation; dining saloon forward; three large staterooms, bathroom and toilet aft; mahogany finish throughout; large separate galley; independent electric lighting plant. Inventory very complete. Owner will accept less than two-thirds of the cost for immediate sale. Cox & Stevens, 15 William St., New York. Telephone Broad 1375.

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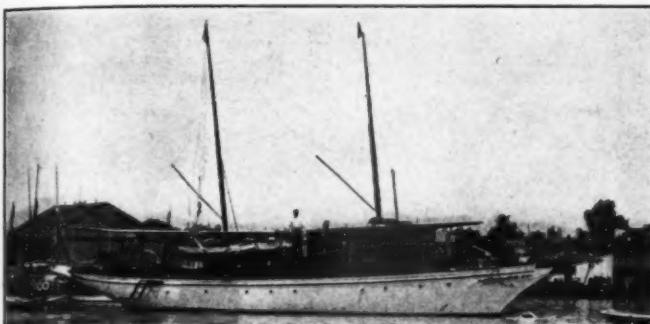
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My Illustrated Yacht List showing intending buyers, in concise form, over 150 pictures of the various types and sizes of the 2,000 or more yachts for sale and charter, has just been published and will be forwarded gratis to those interested.

See Page 61 for Stanley M. Seaman's Other Attractive Offerings.



6848.—Twin Screw Coast Cruiser—70 x 13 x 4.3; mahogany deck dining saloon with dumbwaiter to galley; 2 staterooms and saloon aft; berth 8 people; solid mahogany finish; acetylene light; two 36 H. P. Globe engines; new 1909; speed 11 miles; very seaworthy; economically maintained. Stanley M. Seaman, 220 Broadway, New York.



7192.—65 x 13.8 x 4; launched 1910; 2 staterooms and saloon; berth 7; two toilets; solid mahogany interior; acetylene light; go Standard—control on bridge; speed 12½ miles; elegant sea boat; complete inventory. Stanley M. Seaman, 220 Broadway, New York.



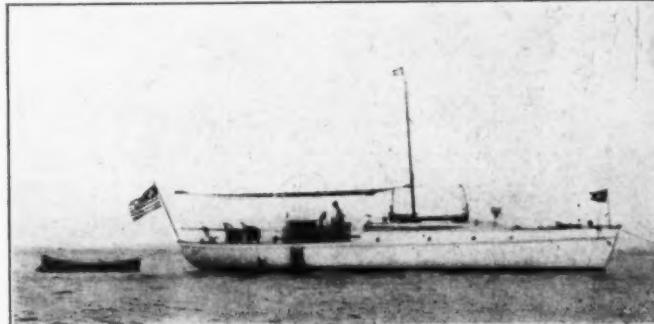
7049.—Twin Screw Express Gasoline Cruiser; 70 x 8.3 x 3; built by Gas Engine & Power Co.; copper riveted throughout; saloon aft, berths 2; cockpit can sleep 2; mahogany interior; two 110-120 Speedway engines; speed 23 miles; in first class condition; ideal ferry type or racing tender; low price. Stanley M. Seaman, 220 Broadway, New York.



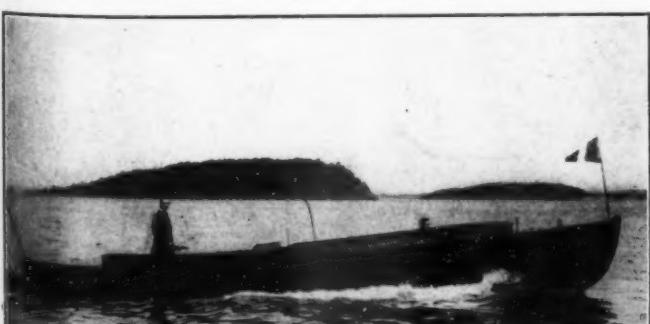
7081.—64 x 17 x 3½; Lawley construction; living quarters provide owner's double stateroom, 2 double and 1 single guests' staterooms, berthing 9 people; 2 large saloons; bath; 25 Standard; speed 7½ knots; economically maintained; cruised Maine to Florida; nothing like her for sale. Stanley M. Seaman, 220 Broadway, New York.



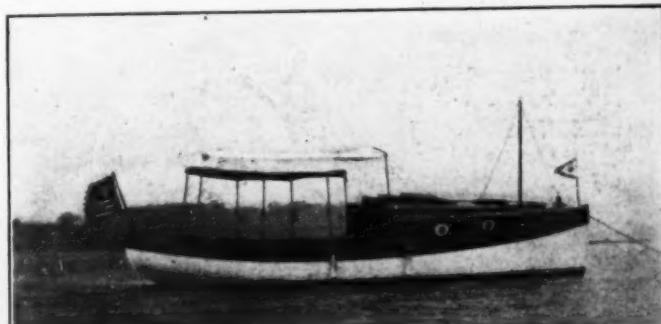
7189.—53.10 x 10½ x 4½; extra heavy construction; built strictly for outside work; berths 8 people; large galley; mahogany interior; 50-65 Standard; bridge control; speed 10 knots; complete cruising inventory; in first class condition; cost over \$10,000; very low price. Stanley M. Seaman, 220 Broadway, New York.



6145.—55 x 11 x 3½. Lawley construction; stateroom and saloon berth 6; mahogany interior; electric lights; 25 Standard; speed 11 miles; ideal craft of character, maintained with one paid hand. In splendid condition. Stanley M. Seaman, 220 Broadway, New York.



7172.—Semi-speed Launch; 34 x 6.3 x 3. Lawley build; mahogany construction, copper fastenings; 25 H. P. Sterling engine, installed 1912; speed 12 knots; ideal type for family purposes; elegant sea boat; low price. Stanley M. Seaman, 220 Broadway, New York.



7063.—Single handed cruiser; 27½ o. a., 7½ beam, 27 inches draught; 10 foot cockpit; cabin berths 2, finished in oak; galley; 15 h. p. Ferro engine, new 1909; speed 10 miles; complete equipment; low price. Stanley M. Seaman, 220 Broadway, New York.

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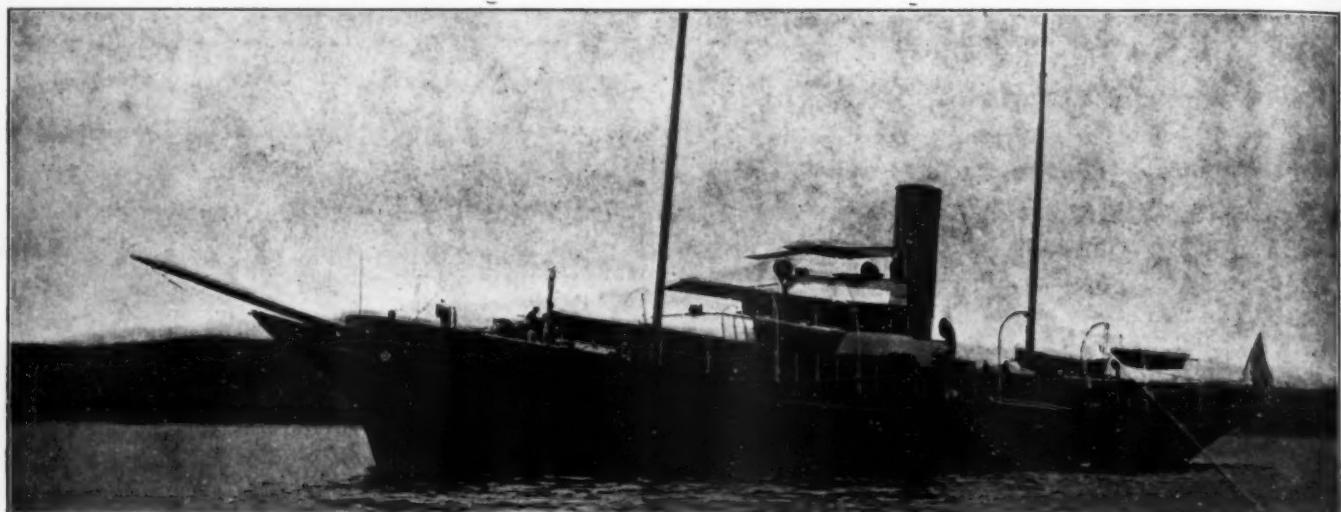
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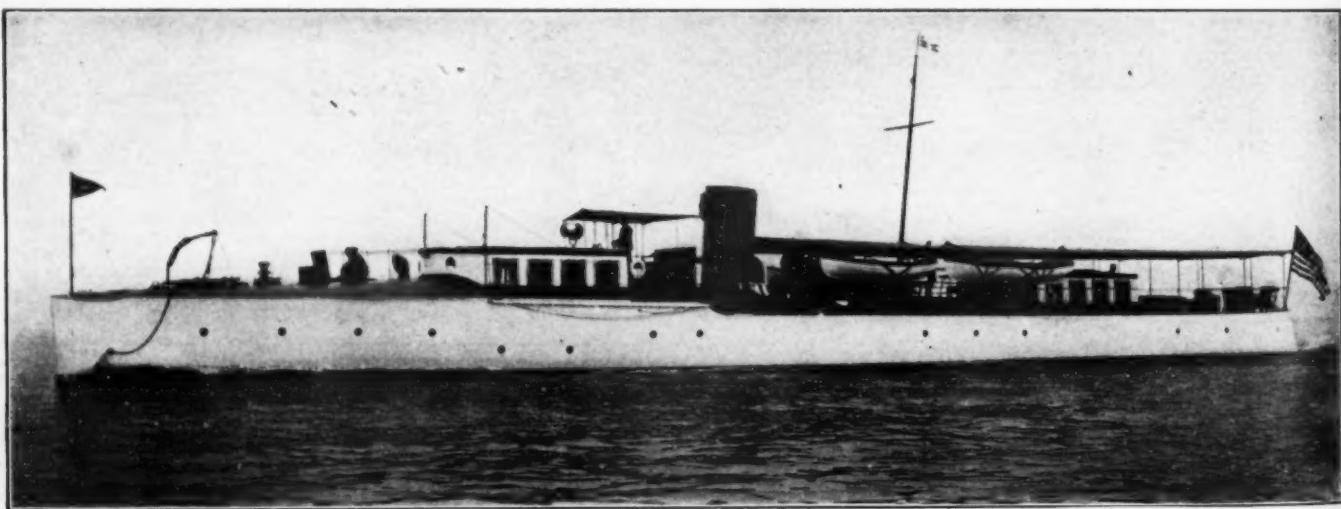
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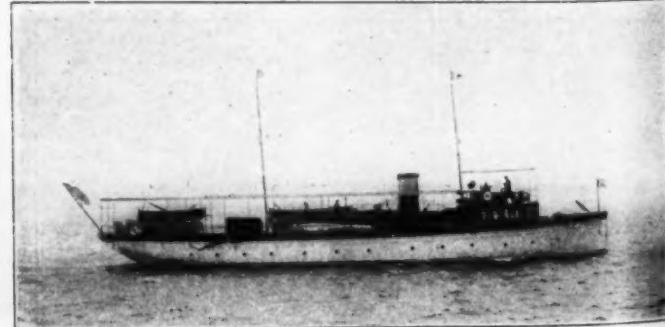
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No. 618.—Sale or charter. 135 ft. steel steam express cruiser, four staterooms, two saloons, baths, etc. Elegant appointments. Speed, 17 knots.
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No. 1028.—Offered by estate. Well known Bermuda cruiser, 60 ft.; 6 cyl. Craig motor. Exceptional price. Good sail boat tender.
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No. 1557.—Sale and charter, flush deck motor yacht, 98 x 16 ft., two Standard engines. Commodious accommodations.
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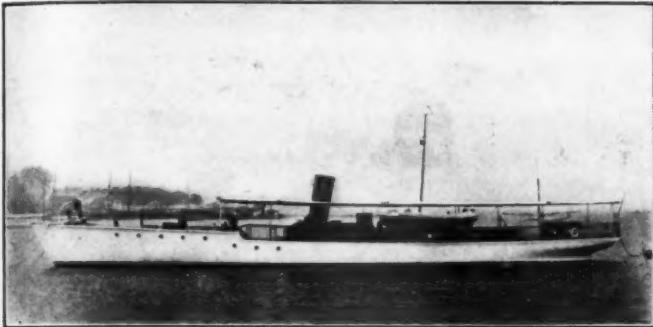
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We have probably the largest list of American and European Yachts of all types for sale, charter or exchange, of any marine brokers. We give special attention to this department so that our information on each boat is always the most complete and up-to-date available.

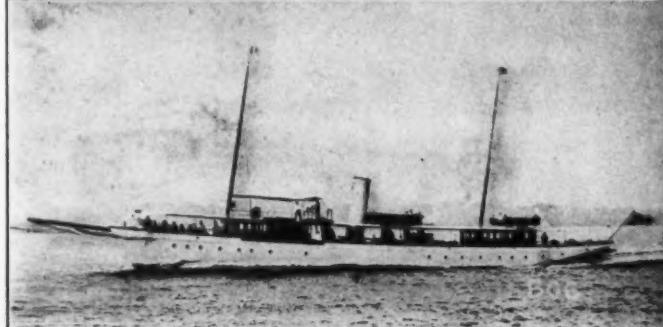
As there are upwards of 3,000 yachts in our list, we can furnish you with exactly what you want, whatever the type, size, cost,

equipment or class of service you have in mind. We publish no book of these, because our list is so large and constantly changing, but we will promptly submit photographs and full information on all suitable boats on the market, if you mention your requirements.

Our long experience as architects and engineers lends an added value to our brokerage service, in expert appraisal and advice, estimates and supervision on alterations, etc.



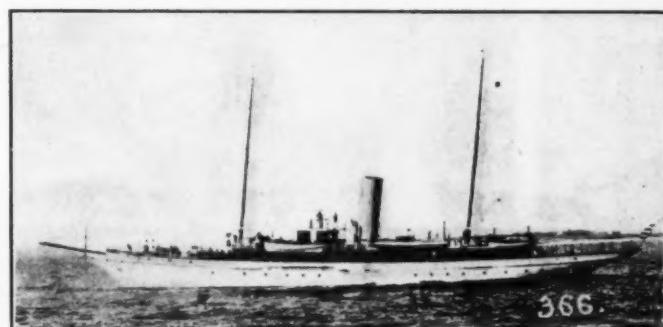
No. 2400.—Sale—"Express type" steam yacht with cruising accommodations, 98 ft. x 11 ft. 6 in.; our design; has had little use; fine condition; 18 miles.
Please mention MOTOR BOATING.



No. 506.—Sacrifice—180 ft., single screw, steel; 20 miles; A1 condition; fine accommodations; high class throughout.
Please mention MOTOR BOATING.



No. 3659.—Twin screw cruiser, 99 ft. x 14 ft. x 4 ft. 6 in. draft; 6-cylinder air starting and reversing motors, 150 H. P. each; 18 miles; built 1909; roomy; able; fine order.
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No. 366.—Single screw steel steam yacht, specially adapted for offshore cruising; grand sea boat; elegant accommodations; 200 ft. x 26 ft. x 12 ft.; triple engine; Scotch boiler. Reasonable.
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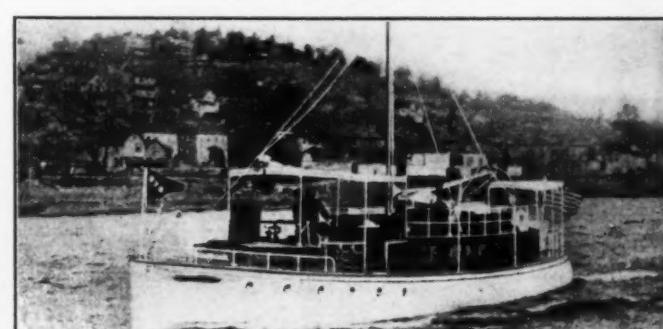
No. 3691.—Sale—Twin screw, 90 ft. x 16 ft. x 4 ft. 6 in. draft; A1 throughout; 6-cylinder air starting and reversing motors, 150 H. P. each; 15-16 miles; built 1911.
Please mention MOTOR BOATING.



No. 4034.—Attractive 1911 day cruiser, 50 ft. x 8 ft. x 3 ft.; high class throughout; 18-19 miles; fully found.
Please mention MOTOR BOATING.



No. 3956.—To close an estate; 49 ft. auxiliary motor boat; 1910; roomy; able; 30-40 H. P. motor.
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No. 4023.—Sale—High-class cruiser, launched December, 1911; used one season; 55 ft. x 10 ft. 6 in. x 3 ft. draft; 6-cylinder motor; 12 miles; complete.
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No. 8428.—For Sale—Fast open runabout, 45 ft. x 6 ft. 6 in. x 2 ft. 6 in. draft; designed and built by Gas Engine & Power Co., 1910; 6 cylinder, 4 cycle; Speedway motor; speed 19 to 20 miles; elegant sea boat; one of the best types ever built.



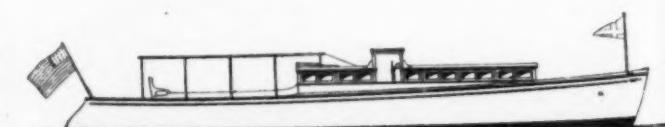
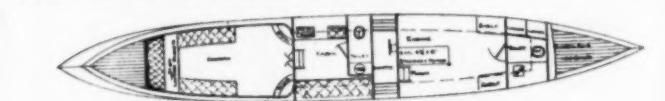
No. 7459.—For Sale—Modern raised deck cruiser, 60 ft. 7 in. x 12 ft. x 3 ft. 6 in. draft; designed by Gielow and built 1907; commodious owner's quarters, consisting of two staterooms, large saloon; galley, engine room and crew's quarters; two toilet rooms; 40 H. P. Lamb motor new 1910; speed 10½ miles; large gasoline and water tanks; 6 ft. headroom; carries dinghy and launch; lighted by electricity; yacht in excellent condition, thoroughly overhauled, new upholstery, etc., at a cost of about \$3,000. Good size bridge and after deck.



No. 7500.—The above yachts are offered for sale together or separately. The schooner yacht is of the new 40 ft. class and is now building and can be purchased below her contract price. There are several others building in this class and good racing if desired is assured. 62 ft. overall, 40 ft. water line, 11 ft. beam, 7 ft. draft. Oak frames, pine planking, 8 tons lead ballast. Will have 1 double stateroom, saloon, 3 transom berths, 2 W. C's, galley and crew's quarters. Motor could be installed if desired. The motor yacht is 56 ft. overall, 51 ft. 9 in. water line, 12 ft. 6 in. beam, 3 ft. 9 in. draft. Would make an ideal tender for the schooner yacht. Practically new and has had very little use. Designed and built by the Electric Launch Co. in 1911. Has 40 H. P. Standard Motor. Speed 11 miles. 100 gallon copper gasoline tank. Accommodations consisting of a large saloon with transom berths, good size stateroom with 2 berths, 2 W. C's. Separate galley and engine room. Complete equipment for cruising. Yacht in good condition. An able and seaworthy craft. Further particulars, plans, etc., from Tams, Lemoine & Crane, 52 Pine Street, New York.



No. 8180.—For Sale—Practically new Elco express runabout; launched August, 1911; 20 ft. x 4 ft. 6 in. beam; 4 cylinder motor; speed 26 miles; substantially constructed, mahogany planked; seats four comfortably in a athwartship seats; boat in pink of condition, having had best of care; price attractive; makes an ideal yacht tender. Can be carried on davits of any moderate size yacht.



No. 8468.—For Sale—Fast day cruiser 60 ft. overall, 8 ft. beam, 3 ft. draft; designed and built by Gas Engine & Power Company 1908; oak frames, cedar planking, copper fastened; 90 H. P., 6 cylinder Speedway motor; speed 16 knots; has 200 gallon gasoline tank; saloon with transom and toilet room and crew's quarters and their W. C.; 6 ft. 3 in. headroom; carries 50 gallons water; finished in mahogany; yacht and motor in perfect condition.

FRANK BOWNE JONES, Yacht Agent

29 Broadway, New York

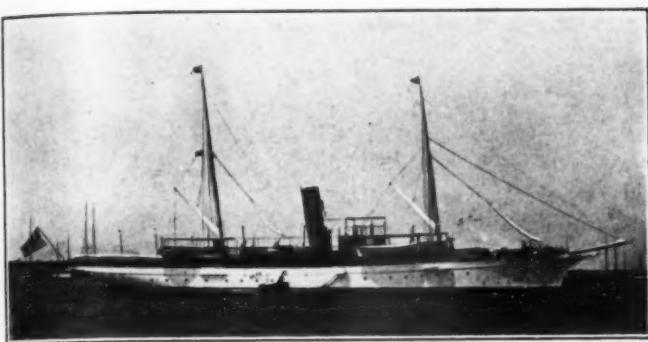
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High Class Yachts of all types for sale and charter

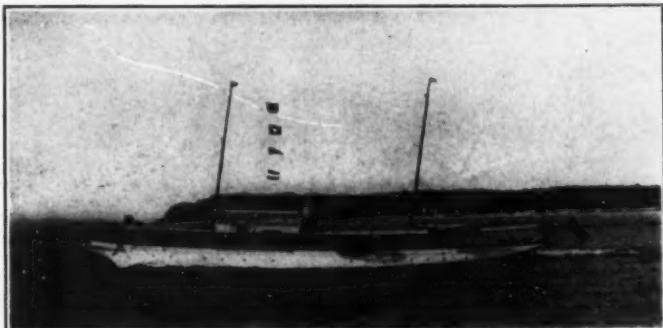
NAVAL ARCHITECTURE

MARINE INSURANCE

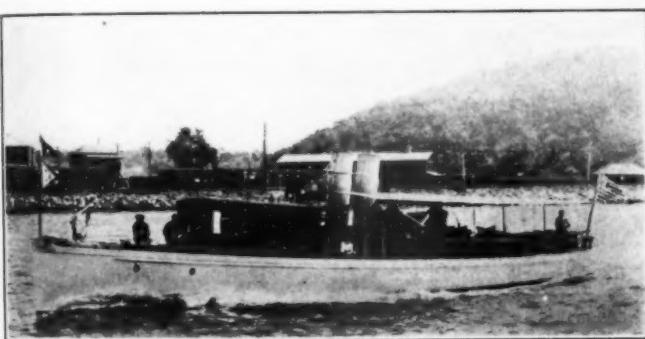
ALL THE BETTER YACHTS AVAILABLE FOR PURCHASE OR CHARTER LISTED



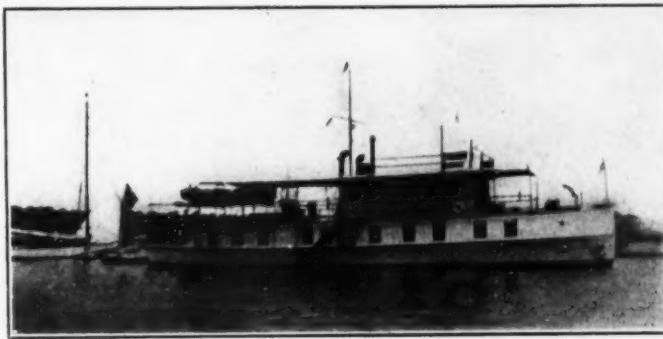
No. 3036.—Modern ocean going steam yacht; available for purchase or charter.
Please mention MOTOR BOATING.



No. 1444.—145 ft. steel steam yacht. Condition as good as new. Purchase or charter.
Please mention MOTOR BOATING.



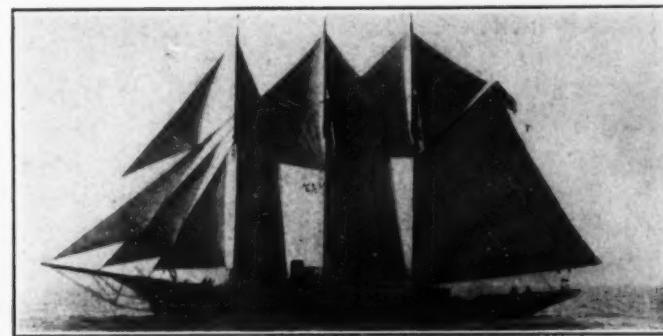
No. 2414.—100 ft. twin screw express steam yacht. Seabury build; over 20 miles speed.
Please mention MOTOR BOATING.



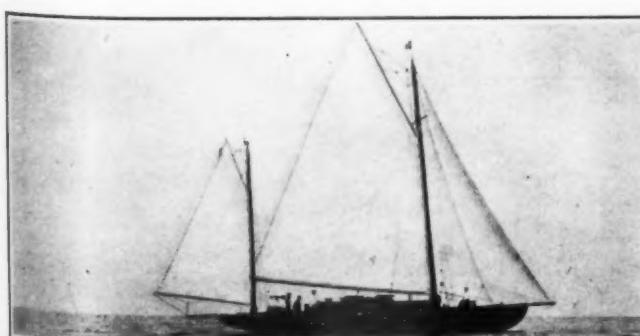
No. 5984.—75 ft. power house yacht. Latest type and build.
Please mention MOTOR BOATING.



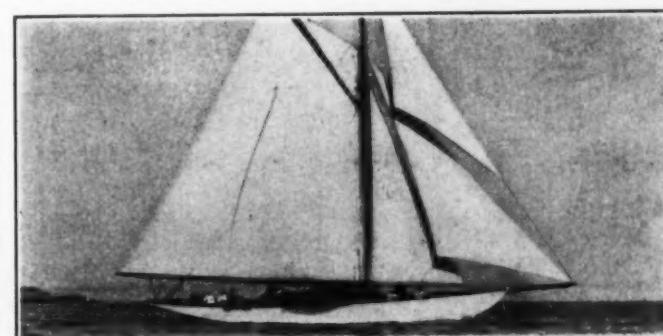
No. 3910.—Steel auxiliary schooner. 80 ft. water line. Best design and build.
Please mention MOTOR BOATING.



No. 5133.—Steam auxiliary yacht. Recent build. Finest vessel of the type.
Please mention MOTOR BOATING.



No. 4944.—Light draft auxiliary yawl. 45 ft. water line. A splendid cruiser.
Please mention MOTOR BOATING.



No. 2991.—Splendid cruising sloop. 50 ft. water line. Adapted for auxiliary power.
Please mention MOTOR BOATING.

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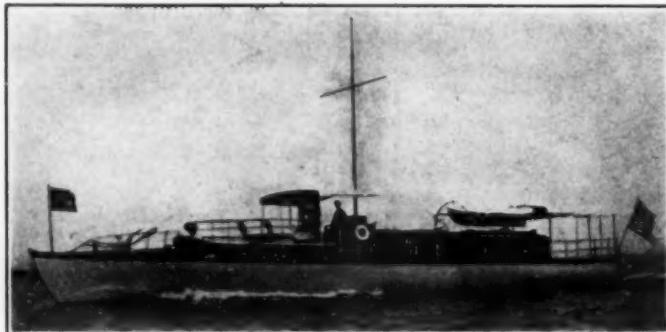
WHITTELSEY & WHITTELSEY

MARINE
INSURANCE
AND
INSPECTIONS

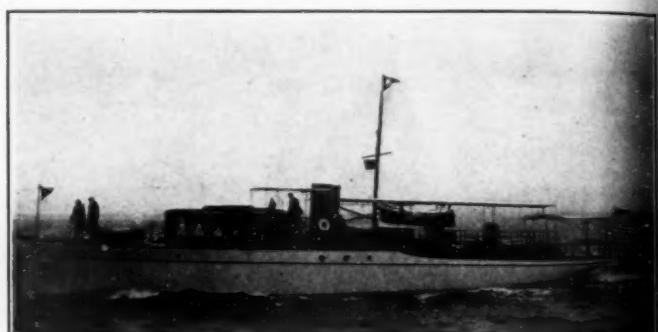
11 Broadway, New York

Telephone 4718 Rector

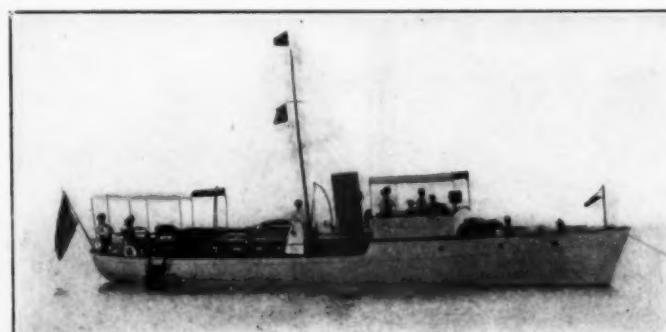
We have listed in our Brokerage Department all of the very best available yachts for sale, charter, or exchange. If you will advise us fully as to your requirements such as approximate dimensions, amount of cruising accommodations, speed, type, etc., we would be very glad to select descriptions of such yachts from our lists as will exactly suit your requirements and forward them to you with full description, pictures, and plans.



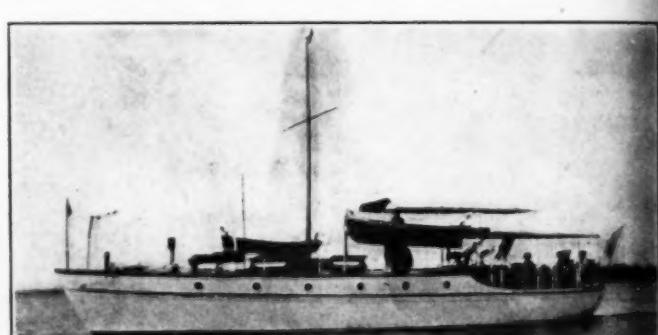
No. 2809.—Very roomy motor cruiser 75x14 ft.; Standard engines; 75 h.p.; electric light.
Please mention MOTOR BOATING.



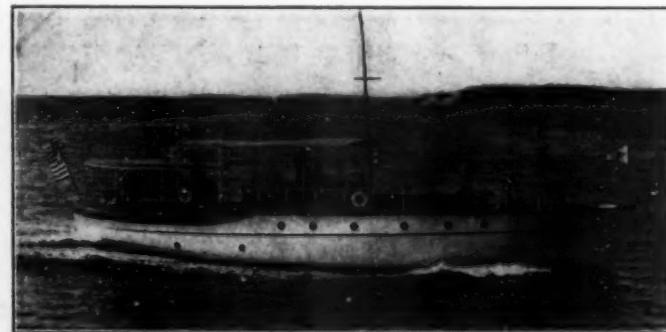
No. 9505.—Very attractive motor yacht; designed by us; 90x15 ft.; three large double staterooms; twin screw, Sterling engines; electric light.
Please mention MOTOR BOATING.



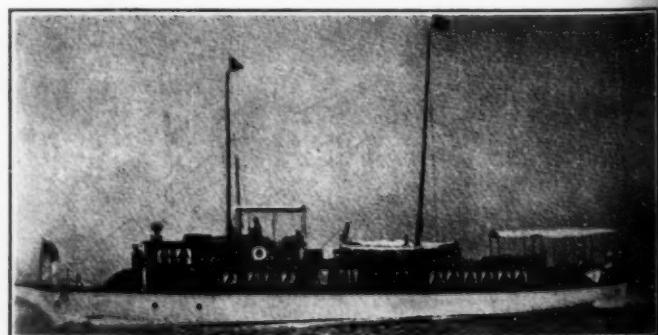
No. 2507.—Speedy, bridge deck, motor cruiser 55x10 ft.; 20th Century motor.
Please mention MOTOR BOATING.



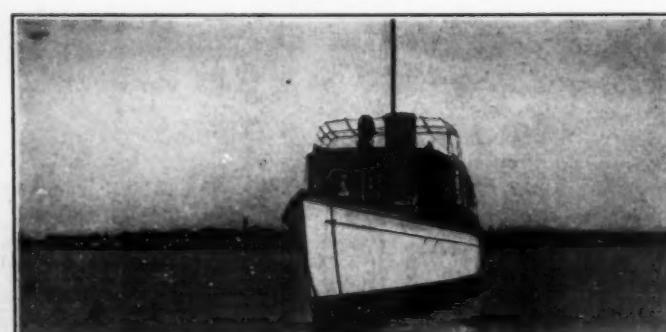
No. 2544.—Exceedingly roomy, raised deck cruiser 55x12½ ft.; Buffalo motor; two staterooms.
Please mention MOTOR BOATING.



No. 9502.—Very high class 60 ft. raised deck motor cruiser; one double and one single stateroom; sleeps 7; 45 h.p. Standard engine controlled from deck; electric light. Fully equipped, furnished, and in perfect condition.
Please mention MOTOR BOATING.



No. 2775.—Cruising motor yacht; 80x14 ft.; 70 h.p. 20th Century engine; very handsomely built; accommodations for eight; electric light; price very reasonable.
Please mention MOTOR BOATING.



No. 2813.—Speedy motor yacht; twin screw; Sterling motors; 14 to 15 miles per hour; dimensions 95x14 ft.; completely overhauled this winter.
Please mention MOTOR BOATING.



No. 3510.—Handsome, steam yacht 180x22 ft.; very speedy; excellent accommodations; lavishly furnished; price very reasonable.
Please mention MOTOR BOATING.





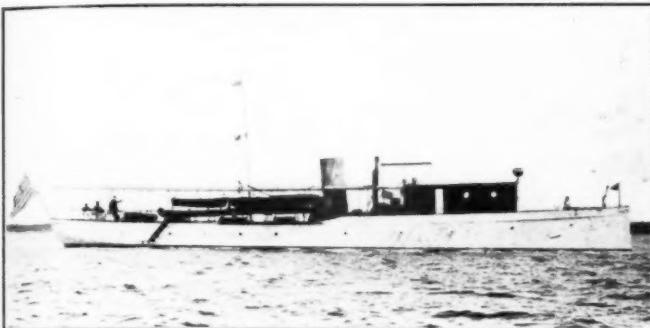
COX & STEVENS

NAVAL ARCHITECTS AND YACHT BROKERS

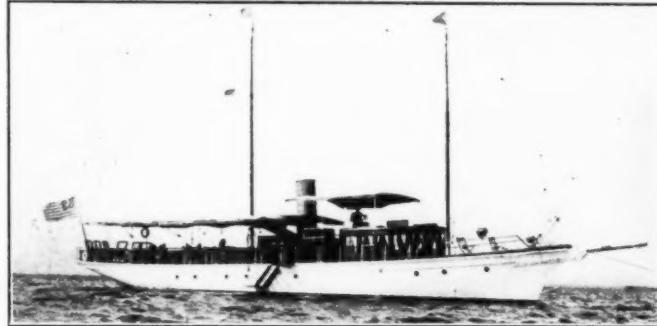
Telephone
1375 Broad

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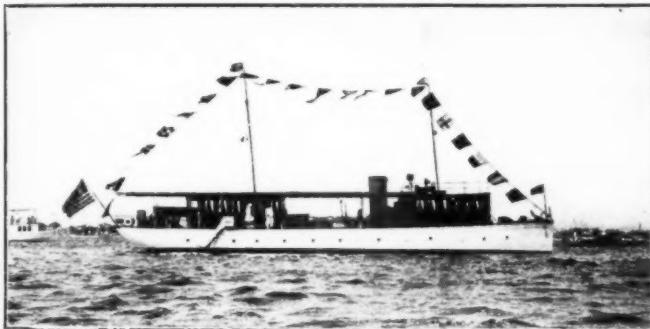
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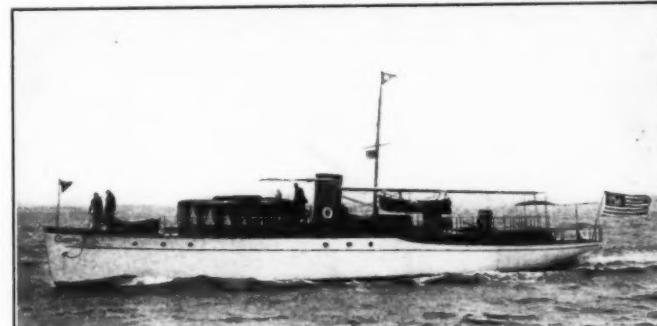
No. 1250.—For Sale.—Lawley built 112 ft., twin screw power yacht; recent build. Speed 13 knots; Craig motors. Four staterooms, bath, two toilets, etc. In first class condition. Fully found. Price attractive. Cox & Stevens, 15 William St., New York.



No. 573.—For Charter or Sale.—In commission. Very roomy, attractive twin screw power yacht, 90 x 14.6 x 3.2 ft. Recently built in best manner from our design. Speed 11 miles. Very economical to operate. Large dining saloon, three double staterooms, good sized main saloon, bath, two toilets; independent electric lighting plant, etc. Motor controls at bridge. For further particulars apply to Cox & Stevens, 15 William St., New York City. Telephone Broad 1375.



No. 2092.—For Sale or Charter.—Twin screw cruising power yacht, 98 x 16 x 5.6 ft. Recent build. Speed 13 miles. Handsomely finished and furnished. Excellent accommodation. Price attractive. For full particulars apply to Cox & Stevens, 15 William St., New York.



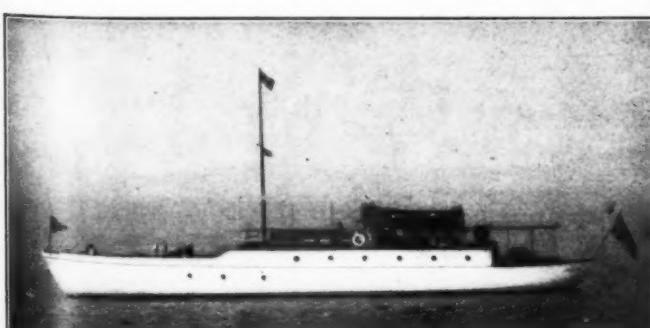
No. 2088.—For Sale.—Practically new, 90 x 15 x 4 ft., twin screw cruising power yacht. Speed 13-15 miles; two 6 cylinder Sterling motors. Very able craft; large accommodation. Price low. Further particulars from Cox & Stevens, 15 William St., New York. Telephone Broad 1375.



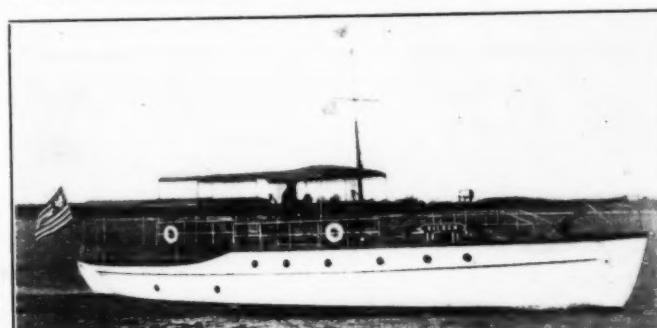
No. 1714.—For Sale.—Very desirable twin screw gasoline cruiser, 67.6 x 13.6 x 3.6 ft. Built 1911. Speed 11-12 miles; Standard motors. Dining saloon and galley forward; two double staterooms and bathroom aft. Now in the South. Price low. Cox & Stevens, 15 William St., New York.



No. 1387.—For Sale.—Very desirable twin screw gasoline cruiser, 65 x 11.6 x 4.3 ft. Built 1911. Speed 13-14 miles; 20th Century motors. Two double staterooms, dining saloon, bath. Cox & Stevens, 15 William St., New York.



No. 484.—Bargain.—Twin screw gasoline cruiser, 71 x 12 x 4 ft. Speed 13-15 miles; two 4 cylinder Speedway motors (new 1911). Two double staterooms, saloon, etc. Independent electric lighting plant. In first class condition. Apply to Cox & Stevens, 15 William St., New York. Please mention MOTOR BOATING.



No. 1457.—For Sale.—Very able raised deck cruiser, 60 x 12.6 x 4.6 ft. Built 1911. Speed 11-12 miles; 40-50 H. P., 6 cylinder Standard motor. Large saloon, double and single stateroom aft; engine room, galley, etc., forward. Electric lights. Construction unusually heavy. Probably best proposition in this type available. Price very low. Cox & Stevens, 15 William St., New York City. Telephone Broad 1375.

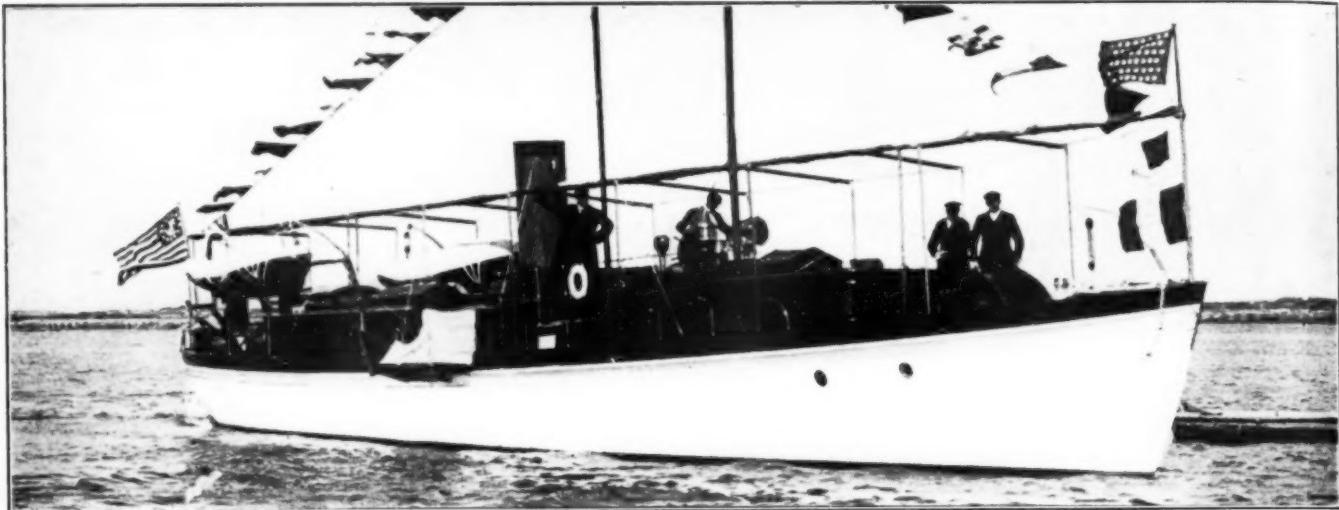
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NAVAL ARCHITECTS AND YACHT BROKERS

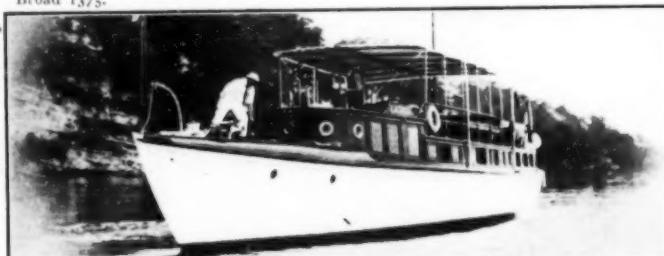
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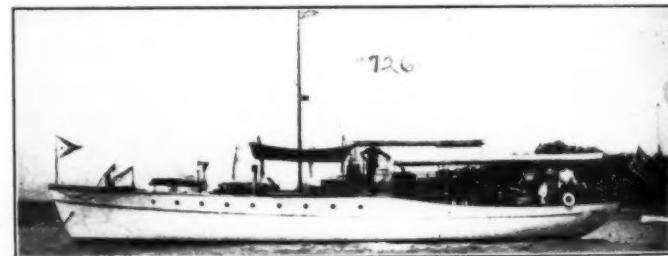
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A few are shown on this page. Plans, photographs and full particulars mailed on request.



No. 481.—An unusual bargain—High grade, fast, twin screw, cruising power yacht; 93 x 13.6 x 4.6 ft.; speed 14-16 miles; two 110 H. P. 6 cylinder Standard motors; built in best manner by well known firm. Accommodations include large saloon with four Pullman berths, galley and toilet room aft; double stateroom and bathroom forward. Finish of mahogany throughout. Independent electric lighting plant. An excellent sea boat, her equipment is most complete. The exceptionally large bridge and after deck make her very desirable for day service as well as cruising. Has had the very best of care and is in absolutely first-class condition. An immediate sale is desired as owner has a larger yacht and has no further use for her. For plan and further particulars apply to Cox & Stevens, 15 William Street, New York. Telephone Broad 1375.



No. 97.—Offer Wanted—Twin screw power yacht; 93 x 14 x 4.6 ft.; speed 14 miles; two 75 H. P. Craig motors; excellent accommodation; electric lights; mahogany finish; fully found; owner anxious to sell. Cox & Stevens, 15 William St., New York. Telephone Broad 1375.



No. 726.—For Sale—Well known raised deck gasoline cruiser; 65 x 13.8 x 3.6 ft.; built 1909 in very substantial manner; speed 12-14 miles; 75-90 H. P.; 6 cylinder motor. Winner of New York-Halifax Reciprocity Race in 1911. Large accommodations; double and single stateroom, large saloon, separate galley full width of boat, etc.; completely found; large amount available deck space; splendid sea boat; in first class condition. Apply to Cox & Stevens, 15 William Street, New York City. Telephone Broad 1375.



No. 444.—For Sale at Low Figure—Attractive gasoline cruiser (bridge deck type); 61 x 10.9 x 3.6 ft.; speed 11½ miles; 25-35 H. P. Standard motor; accommodations include double stateroom, roomy saloon and toilet room aft; engine room, galley and crew's quarters forward. Electric lights. Fully found. In first class condition. For plans, further particulars, etc., apply to Cox & Stevens, 15 William Street, New York. Telephone Broad 1375.



No. 1936.—For Sale—Modern gasoline cruiser; 62 x 11.6 x 3.9 ft.; built 1912; speed 11 miles; 40-60 H. P. Murray & Tregurtha motor; forward and after saloons with two berths in each, double stateroom, toilet room, etc.; motor controls on bridge; very desirable cruiser. Price attractive. Cox & Stevens, 15 William St., New York.



No. 442.—For Sale or Charter—Cruising power yacht; 80 x 13 x 3.6 ft.; speed 13-15 miles; 100 H. P. 6 cylinder 20th Century motor (new 1911); accommodations include dining saloon, two double staterooms, bath, etc.; pilot house forward with auxiliary steering gear; large bridge and after deck; fully found; very able, comfortable cruiser, in excellent condition; exceptional bargain. Apply to Cox & Stevens, 15 William Street, New York City. Telephone Broad 1375.

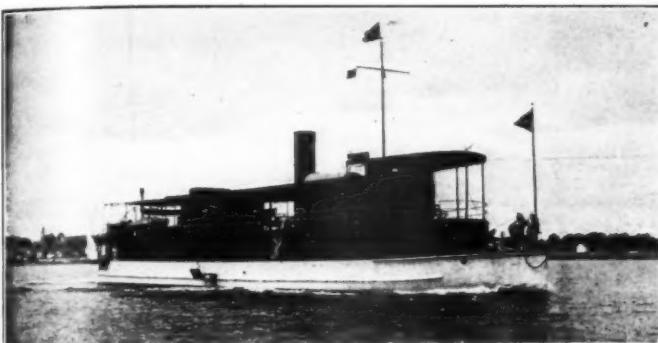
COX & STEVENS

NAVAL ARCHITECTS AND YACHT BROKERS

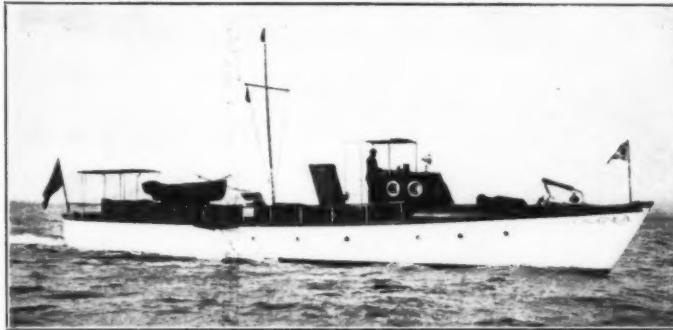
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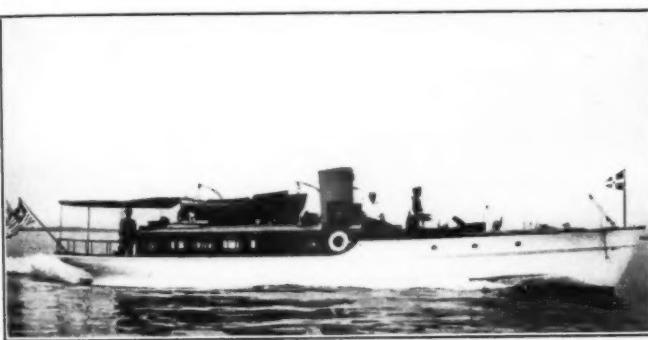
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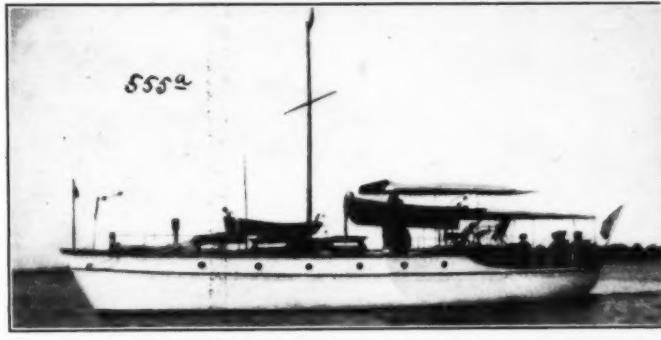
No. 346.—For Sale.—Steel, twin screw steam houseboat, 115 ft. overall, 17 ft. beam, 2 ft. 3 in. draft; speed 10-12 knots; triple expansion engines, water tube boiler. Large accommodation; main saloon, four staterooms and bath forward; dining saloon, owner's stateroom, bathroom, galley, etc., aft. Smoking room in forward deckhouse. Handsomely finished in mahogany throughout. A good sea boat; has cruised from the St. Lawrence to Gulf of Mexico. Will be sold at low figure for quick disposal. Apply to Cox & Stevens, 15 William St., New York. Telephone Broad 1375.



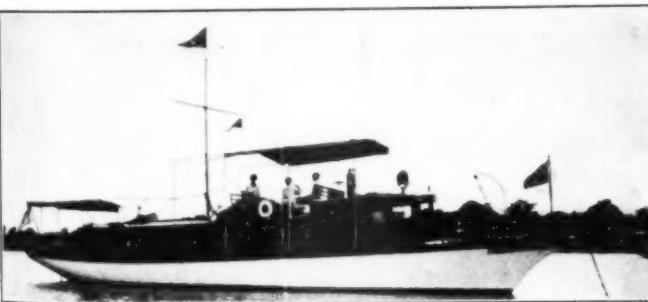
No. 374.—For Sale at Low Figure.—Fast cruising power boat, 70 x 10 x 3.6 ft.; speed up to 16 miles; 75 H. P., 6 cylinder "Speedway" motor (installed 1911). Accommodations include pilot house forward; stateroom, saloon, galley and toilet room aft. Electric lights. In first class condition. An excellent sea boat, very substantially constructed. Apply to Cox & Stevens, 15 William St., New York City. Telephone Broad 1375.



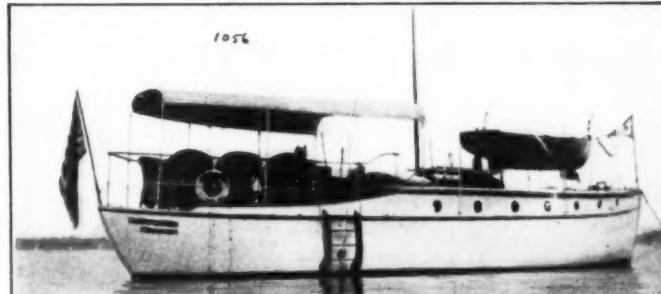
No. 1502.—For Sale.—Very attractive, speedy, bridge deck cruiser; 56 x 9.6 x 3.5 ft. Launched July, 1911. Speed up to 16 miles. 80 H. P. Murray & Tregurtha motor. Excellent accommodation; double stateroom and toilet room forward; large separate galley, saloon and toilet room aft. Electric lights. Handsomely finished. Completely found. Best craft of her kind available. Cox & Stevens, 15 William St., New York. Telephone Broad 1375.



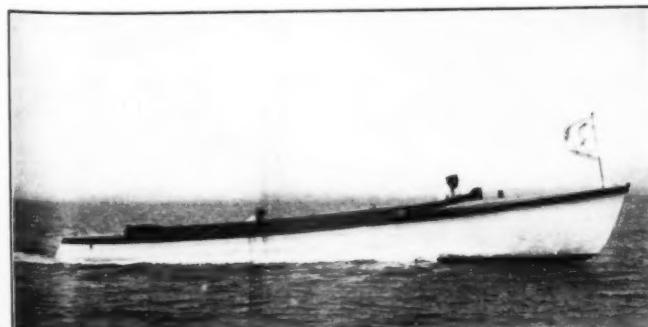
No. 555.—Bargain.—Desirable raised deck cruiser; 55 x 11.6 x 3.6 ft.; speed 10 miles; 24 H. P., 4 cylinder 4 cycle motor. Exceptional accommodation; double and single stateroom, large saloon with three transoms and toilet room aft. Engine room, galley and crew's quarters forward. Fully found and in excellent condition. Abundance of deck room. Owned building schooner yacht from our design. For further particulars apply to Cox & Stevens, 15 William St. Telephone Broad 1375.



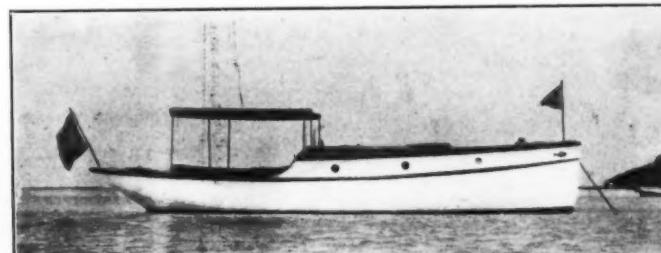
No. 1064.—For Sale.—Very desirable cruising motor yacht; 63 x 12.6 x 3.10 ft.; speed 11-12 miles; 70 H. P. 20th Century motor. Joiner work throughout of mahogany. Accommodations include pilot house, 8 ft. long; main saloon, 15 ft.; galley, 6 ft. 5 in., opposite toilet room; engine room aft, 12 ft. Headroom 7 ft. Large bridge and after deck. Independent electric lighting plant. This craft is in best of condition. In commission. Price very low for high grade cruiser of her size. Apply to Cox & Stevens, 15 William St., New York City.



No. 1056.—Exceptional Bargain.—Raised deck cruiser; 48 x 11.6 x 3 ft. Splendid sea boat; very roomy. Speed 11 miles; 30 H. P., 6 cylinder 4 cycle motor. Saloon aft, 14 ft. long; toilet room, etc. Mahogany finish. Will be sold at about one-third her cost. For further particulars apply to Cox & Stevens, 15 William St., New York. Telephone Broad 1375.



No. 2048.—For Sale.—Fine 40 ft. fast open launch; 6.8 ft. beam. Speed up to 17 miles; 50-70 H. P. motor (new 1911). Best construction; copper fastened. Copper gasoline tank; 60 gallons. A very desirable family boat; no expense spared in keeping her in first class shape. Very seaworthy. All trim of mahogany. Low figure will be accepted for quick sale. Cox & Stevens, 15 William St., New York City. Telephone Broad 1375.



No. 1462.—For Sale.—Splendid raised deck dory cruiser; 31 x 7 x 2.6 ft. draft. Built by The Atlantic Co. in 1911. 10-12 H. P. Atlantic Special motor. Speed 8½ miles. Accommodations for four in cabin. Electric lights. Cedar tender. Very complete inventory. In excellent condition. Must be seen to be appreciated. Price and further particulars from Cox & Stevens, 15 William St., New York City. Telephone Broad 1375.

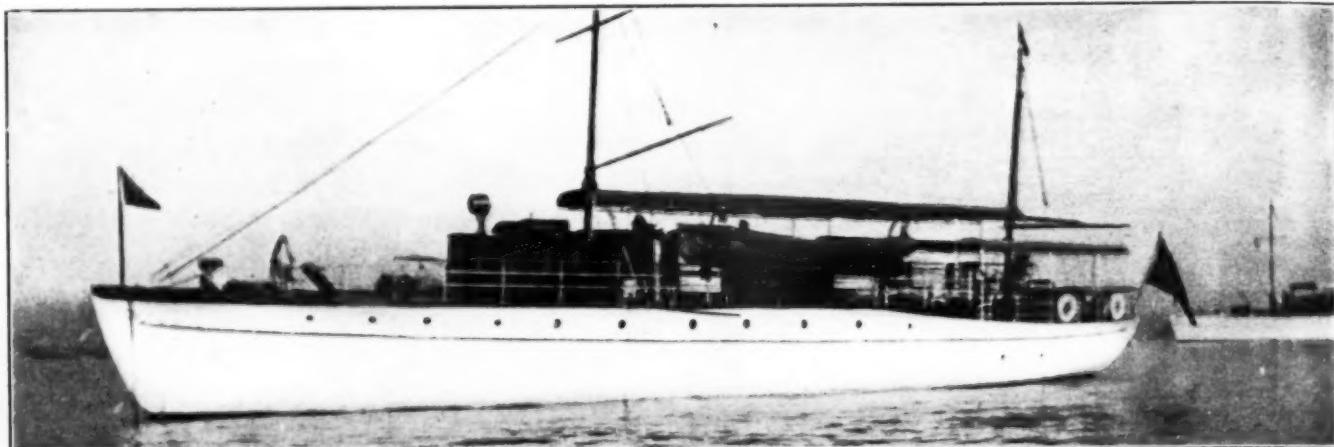
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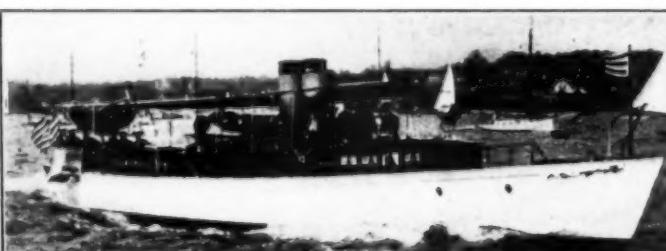
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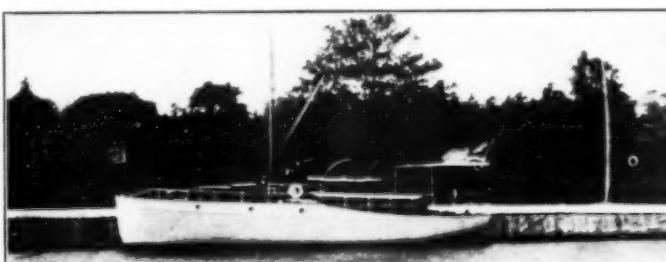
No. 1526.—For Sale.—Unusually able twin screw power yacht, 75 x 14 x 6 ft. Launched August, 1911. Built for off-shore cruising; very heavy construction. Speed 11½ miles; two 60 H. P. Craig motors. Large gasoline capacity. Accommodations include large saloon, two staterooms and bathroom aft; large separate galley forward of saloon. Mahogany finish. Headroom over 7 ft. Steers from both bridge and deckhouse. Large deck space. Electric lights. Yawl rig for emergency use. In first class condition. Very completely found. For plan and further particulars apply to Cox & Stevens, 15 William St., New York City. Telephone Broad 1375.



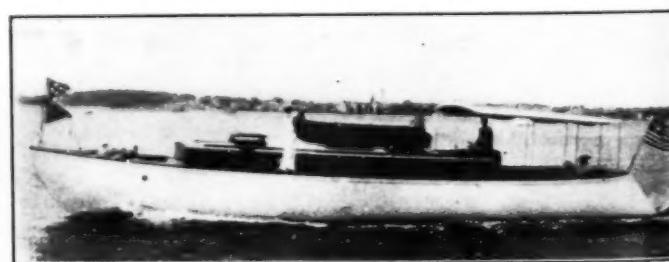
No. 133.—A Sacrifice.—Express type steam yacht, 90 x 16.7 x 4 ft. Built 1903 by Seabury. Speed up to 18 miles; triple expansion engine, water tube boiler. Very desirable for ferry service. Has dining saloon and galley forward; main saloon and toilet room aft. Bridge forward; roomy after deck. In excellent condition throughout. Considerable spent on her within last two years. Immediate sale requested by owner. For plan and further particulars apply to Cox & Stevens, 15 William St., New York City. Telephone Broad 1375.



No. 2105.—For Sale.—Very desirable, able cabin cruiser, 45 x 12.8 x 2.10 ft. Built 1911, in best manner. Speed 10-11 miles; 25-32 H. P. Standard motor. Pilot house and saloon each contain two large berths. Bathroom. Mahogany finish throughout. Independent electric lighting plant. Very complete equipment. Heavily built and in first class condition. Owner desires immediate sale, having purchased larger power yacht through us. An opportunity for any one who wishes the best cruiser of this type available. Apply to Cox & Stevens, 15 William St., New York City.



No. 1291.—For Sale.—Bridge deck cruiser, 48 x 12 x 3 ft draft; built 1910; equipped with 40 H. P. motor; speed 11 miles. Main saloon 13 ft. long, with four Pullman berths. Bath and toilet room, galley, etc. Interior finish of mahogany and white enamel trim. Electric lights. Very able and roomy craft. After deck 10 ft. long. Complete inventory, including launch and dinghy. Bargain for quick sale. Cox & Stevens, 15 William St., New York.



No. 457.—Excellent Bargain.—Very able hunting cabin cruiser, 52 x 16.2 x 3.6 ft. Speed 12-13 miles; 25-30 H. P., 4 cylinder Craig motor. Double stateroom, saloon with two Pullman berths, toilet room, etc. Finish of solid mahogany throughout. Engine controls at steering wheel. Cockpit about 13 ft. long. In excellent condition. Now has signal mast. Owner requests early disposal. Cox & Stevens, 15 William St., New York. Telephone Broad 1375.



No. 470.—For Sale at Low Figure.—Raised deck gasoline cruiser, 60 x 12 x 3.6 ft. Very substantially constructed; copper fastened. Speed 11 miles; 40 H. P., 4 cylinder, 4 cycle Lamb motor (installed 1910). Independent electric lighting plant. Large gasoline and water capacity. Accommodations include double and single stateroom, 10 x 12 ft. saloon, etc. Joiner work of solid mahogany throughout. Unusually large deck and cabin accommodation. Well ventilated throughout. Toilet room 6.6 x 4 ft. Engine room, galley and crew's quarters forward; owner's quarters aft. Large ice box, coal range, etc., in galley. Unusually complete inventory. Most of equipment new 1910, including awnings, water tank, electric plant, etc. In first class condition throughout; a fine sea boat and very comfortable. For plans and further particulars apply to Cox & Stevens, 15 William St., New York City. Telephone Broad 1375.

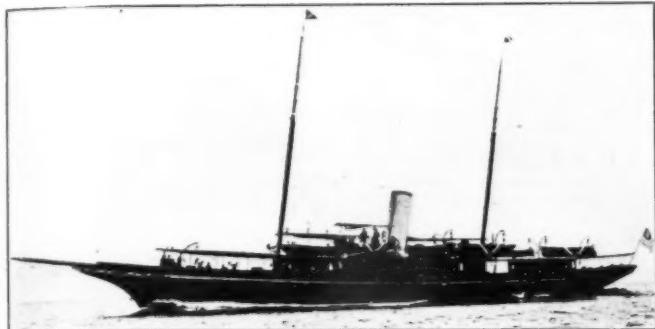
COX & STEVENS

NAVAL ARCHITECTS AND YACHT BROKERS

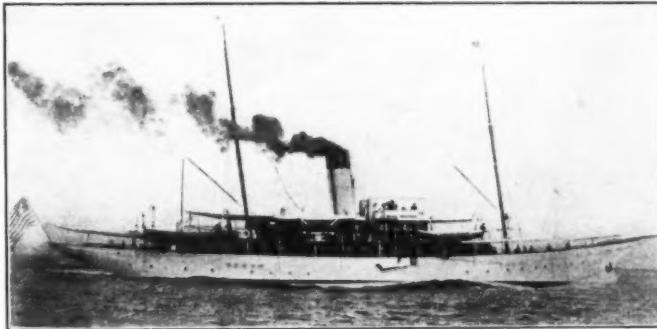
Telephone
1375 Broad

15 William Street
New York City

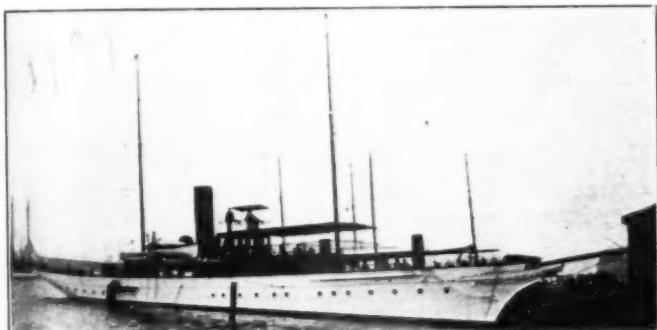
We have a complete line of all steam and power yachts, auxiliaries and houseboats available FOR SALE and CHARTER.
A few are shown on this page. Plans, photographs and full particulars mailed on request.



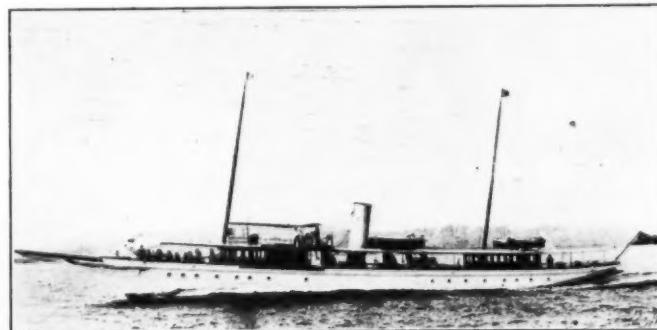
No. 182.—200 ft. seagoing steam yacht, American built; good speed; for sale or charter.
Cox & Stevens, 15 William Street, New York City.



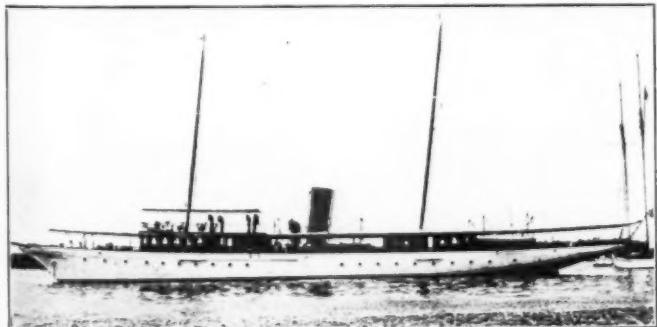
No. 361.—200 ft. English built seagoing steam yacht for sale or charter. Cox & Stevens,
15 William Street, New York City.



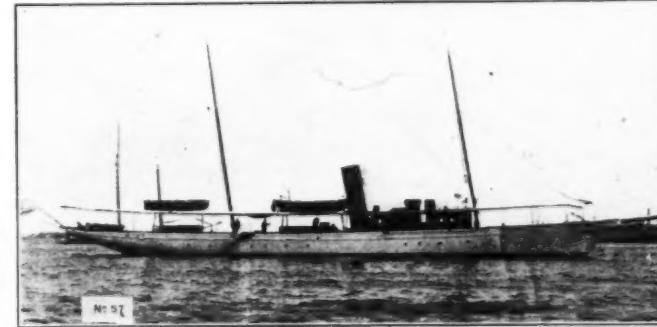
No. 55.—175 ft. seagoing steam yacht, American built; unusual accommodations; for
sale or charter. Cox & Stevens, 15 William Street, New York City.



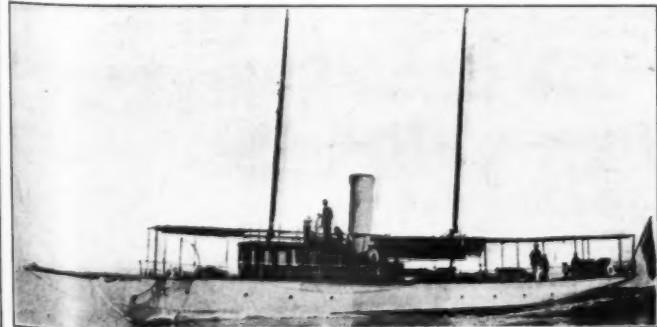
No. 107.—175 ft. high speed, steel steam yacht; excellent condition; remarkable bargain.
Cox & Stevens, 15 William Street, New York City.



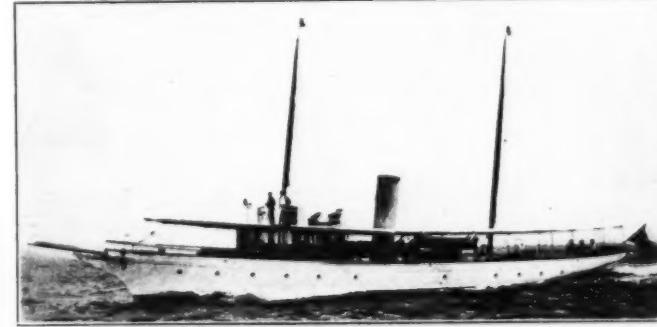
No. 41.—170 ft. modern steel steam yacht; excellent condition; exceptional accommo-
dations. Cox & Stevens, 15 William Street, New York City.



No. 57.—140 ft. steel steam yacht; good speed; attractive quarters; for sale or charter.
Cox & Stevens, 15 William Street, New York City.



No. 14.—Best 100 foot steam yacht in the market; exceptional seaboot; good accommo-
dations; bargain. Cox & Stevens, 15 William Street, New York City.



No. 22.—Attractive 115 foot steam yacht; perfect condition; fast; for sale or charter.
Cox & Stevens, 15 William Street, New York City.

Please mention MOTOR BOATING.

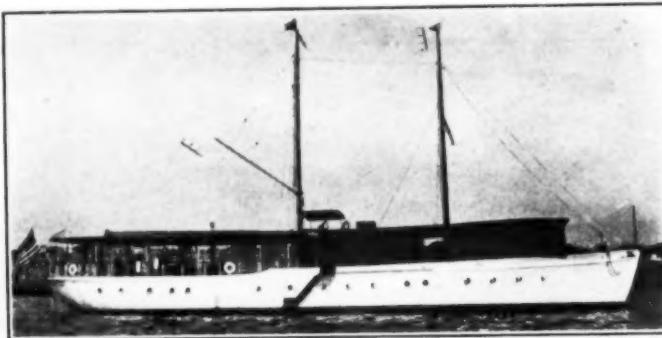
COX & STEVENS

NAVAL ARCHITECTS AND YACHT BROKERS

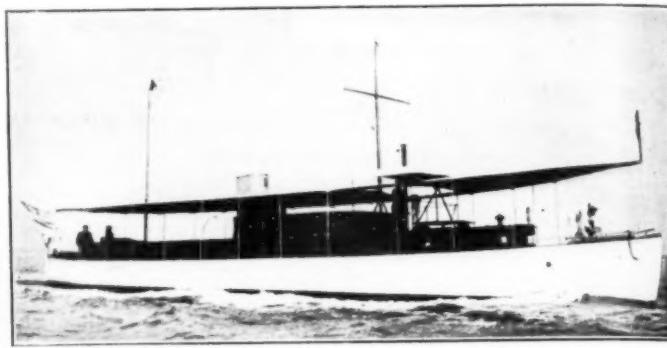
Telephone
1375 Broad

15 William Street
New York City

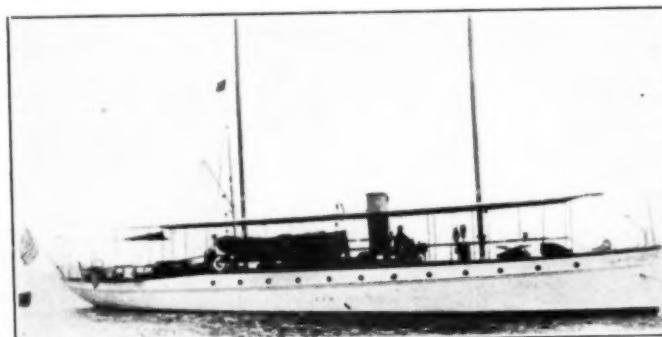
We have a complete list of all steam and power yachts, auxiliaries and houseboats available FOR SALE and CHARTER.
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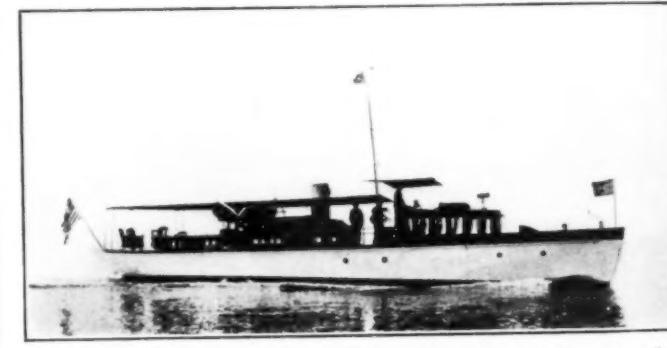
No. 1943.—Offered by Estate. Practically new 95x17 ft. cruising power yacht; especially adapted for off-shore service. Built 1911. Very heavy construction. Speed 12 miles. 110 h.p. 6 cyl. 20th Century motor. Four staterooms, bath, two toilet rooms, large dining saloon; independent electric lighting plant. Reasonable offer desired. For further particulars apply to Cox & Stevens, 15 William Street, New York. Telephone Broad 1375.



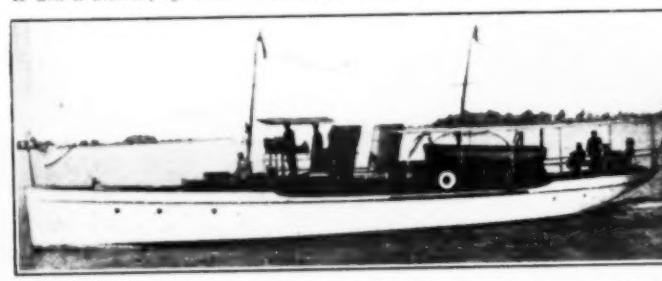
No. 224.—For Sale at Low Figure—Cruising power yacht; 87x15x4.6 ft. Speed 12-14 miles; Craig motor. Two staterooms, bathroom, large dining saloon, etc. Handsomely furnished. Excellent condition. Practically in commission. Apply to Cox & Stevens, 15 William Street, New York. Telephone Broad 1375.



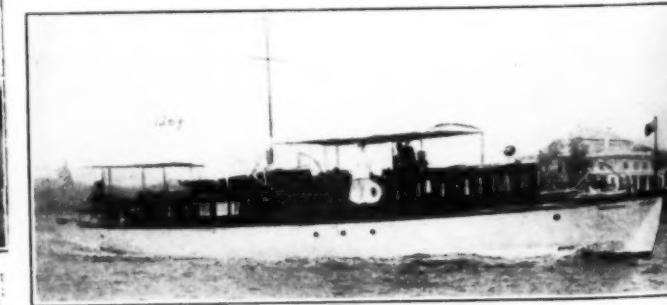
No. 1503.—For Sale or Charter—Flush deck power yacht; 85x15.6x3.0 ft. Built 1911. Speed 12-13 miles; Standard motor. Excellent accommodation. Fully fitted. Apply to Cox & Stevens, 15 William Street, New York. Telephone Broad 1375.



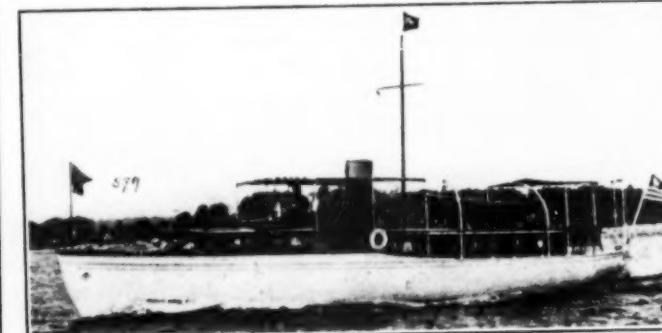
No. 1828.—For Sale or Charter—Attractive cruising power yacht; 75x13x3.6 ft. Launched September, 1911. Speed 11-12 miles; Standard motor. Three staterooms, and bathroom aft; dining saloon forward. Handsomely finished and furnished. Apply to Cox & Stevens, 15 William Street, New York. Telephone Broad 1375.



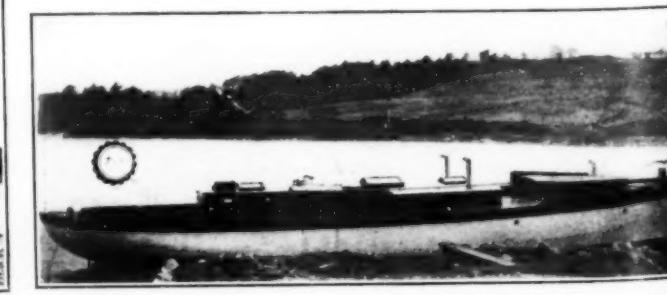
No. 2043.—For Sale or Charter—Fast twin screw power yacht; 72x12x3.6 ft. Built 1911. Speed 12-14 miles. Double stateroom; bathroom and 14 ft. main saloon aft; dining saloon forward. African mahogany finish throughout. Luxuriously furnished. For further particulars apply to Cox & Stevens, 15 William Street, New York. Telephone Broad 1375.



No. 1269.—For Sale—Handsome, twin screw power yacht; 68x12x3.6 ft. Built 1910 by Seabury. Speed 12 miles; two 4 cyl. Speedway motors. Mahogany finish throughout. Stateroom forward; 14 ft. saloon aft. Two toilet rooms. Cox & Stevens, 15 William Street, New York. Telephone Broad 1375.



No. 579.—For Sale—Very attractive gasoline cruiser; 60x11.6x4 ft. Speed 11-12 miles. Double stateroom, large saloon, toilet room and separate galley. Fully fitted. Very desirable craft. Cox & Stevens, 15 William Street, New York. Telephone Broad 1375.



No. 2003.—Bargain—Up-to-date gasoline cruiser; 60x11.7x4 ft. Built 1912. Speed 12-13 miles; 40-50 h.p. 4 cyl. 4 cycle motor. Double stateroom, large saloon, separate galley, etc. Finished in mahogany and butternut. Price very low. Cox & Stevens, 15 William Street, New York. Telephone Broad 1375.

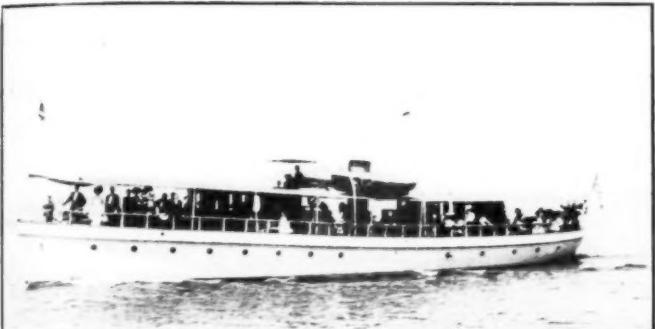
COX & STEVENS

NAVAL ARCHITECTS AND YACHT BROKERS

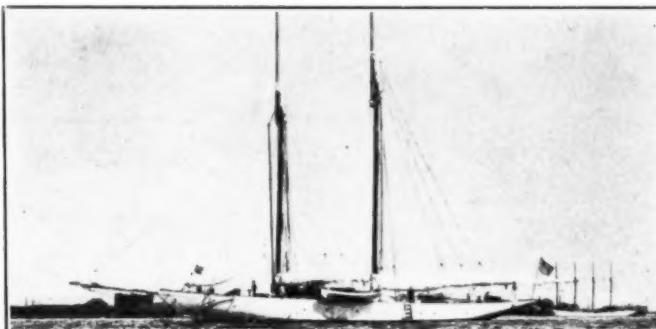
Telephone
1375 Broad

15 William Street
New York City

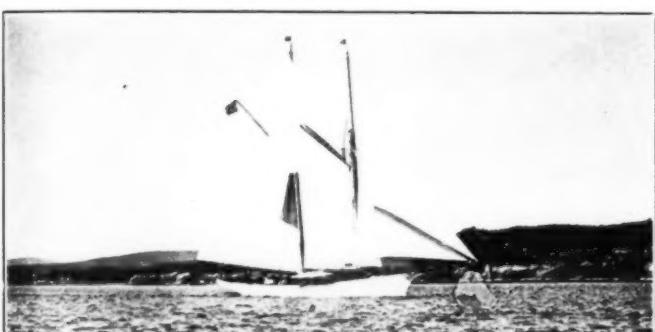
We have a complete list of all steam and power yachts, auxiliaries and houseboats available for SALE and CHARTER.
A few are shown on this page. Plans, photographs and full particulars mailed on request.



No. 6.—Immediate Sale Desired—Twin screw steam yacht; 90x17x5 ft. Adapted for passenger service. Dimensions allow navigation of Erie and other canals. Large accommodation. Consider any reasonable offer. For further particulars apply to Cox & Stevens, 15 William Street, New York City. Telephone Broad 1375.



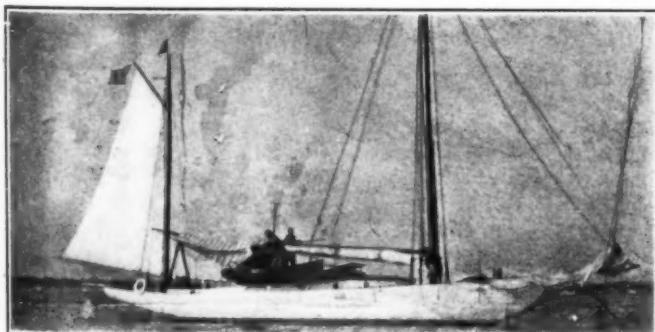
No. 980.—For Sale or Charter—Very able auxiliary schooner yacht; 110x22.6x10.6 ft. Built 1905. Five staterooms, large dining saloon, bath, two toilets, etc. Speed under power 8 miles. Complete equipment. Owner anxious to sell, having built power yacht. Apply Cox & Stevens, 15 William Street, New York. Telephone Broad 1375.



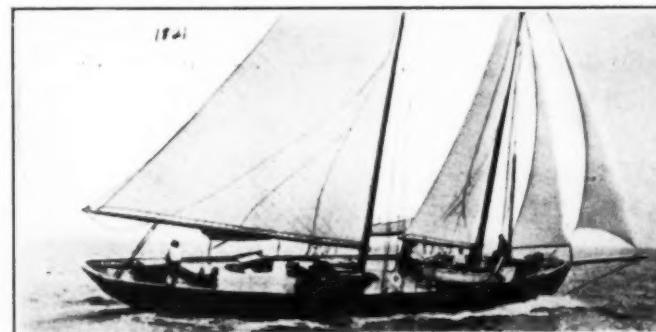
No. 1669.—Offer Desired—Very able keel flush deck auxiliary schooner; 135 ft. overall, 107 ft. water line, 27 ft. beam, 14 ft. draft. Recent build. Excellent accommodation. Speed under power 8 miles; 125 h.p. motor. Ratsey sails new 1911. In first class condition. Full particulars from Cox & Stevens, 15 William Street, New York.



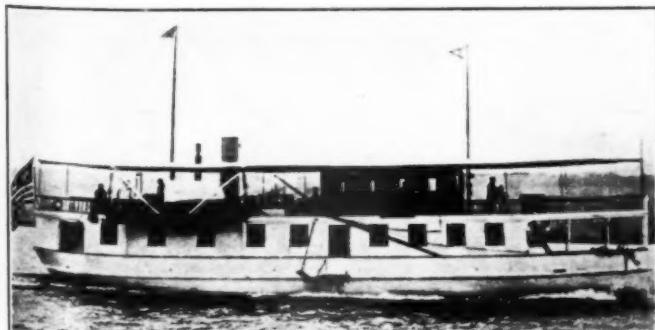
No. 1821.—For Sale—Pole mast, centerboard, flush deck, auxiliary schooner yacht; 98 ft. overall, 68 ft. water line, 20.2 ft. beam, 9 ft. draft. Heavily constructed in best manner. Three staterooms, large saloon, bath, two toilets, etc. Speed under power 9 miles; 50 h.p. Standard motor (installed 1910). Completely found and in excellent condition. Bargain for early disposal. Cox & Stevens, 15 William Street, New York. Telephone Broad 1375.



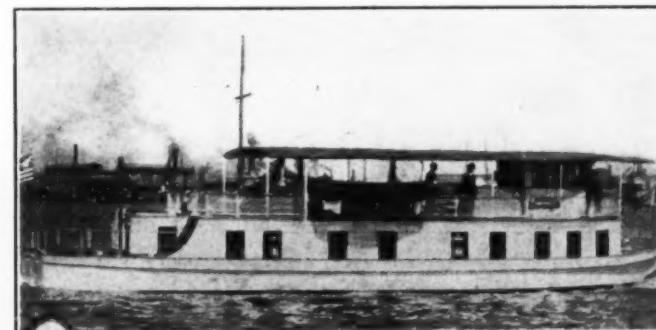
No. 591.—For Sale—Very desirable keel auxiliary yawl; 50x37x14x5.6 ft. Accommodations include double stateroom, saloon, two toilet rooms, separate galley, etc. Sails new 1910, (mainsail new 1911). Speed under power 6½ miles; 25 h.p. "Globe" motor installed under cockpit floor. Fully found. In first class condition. Price low. Apply to Cox & Stevens, 15 William Street, New York. Telephone Broad 1375.



No. 1821.—For Sale—Pole mast, centerboard, flush dock, auxiliary schooner yacht; 78 ft. overall, 60 ft. water line, 18 ft. beam, 4 ft. draft. Built 1911. Two double staterooms, saloon 16 x 12 ft., bath, two toilets, etc. Speed made power 8 knots; 50 h.p. Murray & Tregurtha motor. Very easily handled; splendid sea boat. Owner will accept about one-half her cost for quick sale. Apply to Cox & Stevens, 15 William Street, New York. Telephone Broad 1375.



No. 167.—Sacrifice—(For Sale or Charter)—Twin screw gasoline houseboat; 85x23.6x4 ft. Speed 10-12 miles; two 70 h.p. 20th Century motors. Large accommodation includes three double staterooms, two bathrooms, large dining saloon below and main saloon on deck. Hot water heating plant. Apply to Cox & Stevens, 15 William Street, New York. Telephone Broad 1375.



No. 1246.—For Sale or Charter—Shoal draft, twin screw gasoline houseboat; 70 ft. overall, 18.6 ft. beam, 18 in. draft. Built 1910. Large accommodation. Very desirable type of boat. Has proven excellent sea boat. In commission. For full particulars apply to Cox & Stevens, 15 William Street, New York.
Please mention MOTOR BOATING.

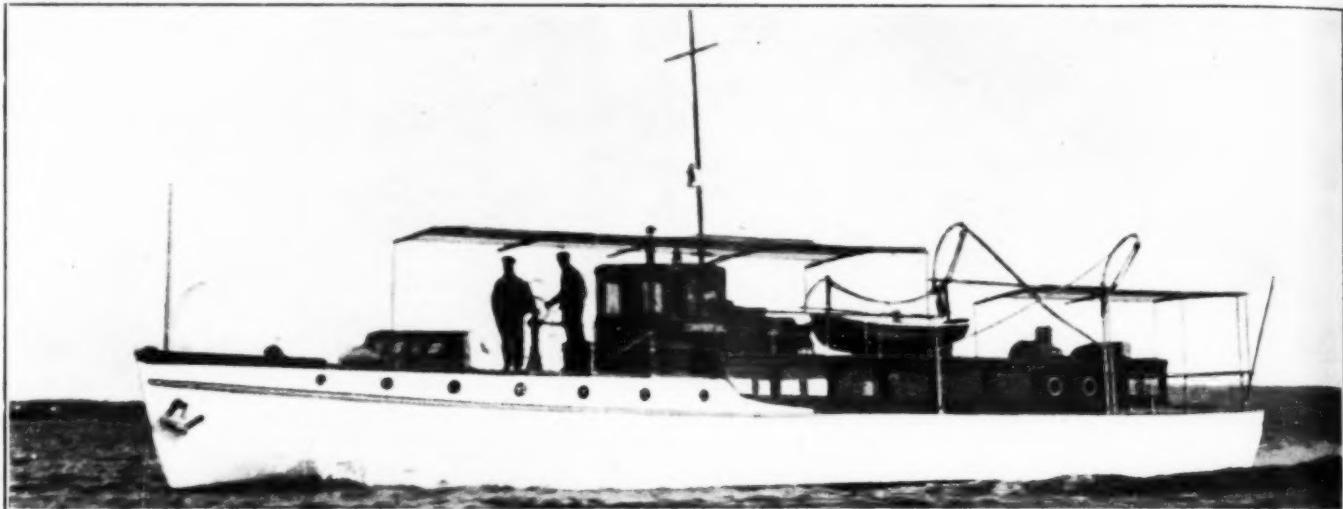
COX & STEVENS

NAVAL ARCHITECTS AND YACHT BROKERS

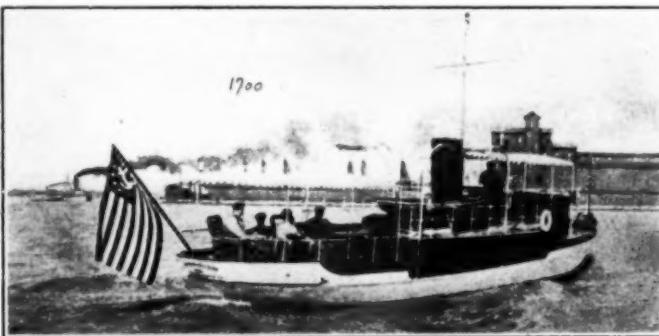
Telephone
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New York City

We have a complete list of all steam and power yachts, auxiliaries and houseboats available for SALE AND CHARTER.
A few are shown on this page. Plans, photographs and full particulars mailed on request.



No. 878.—For Sale.—Very desirable, modern gasoline cruiser; 65 x 13 x 3-4 ft.; launched July, 1909; speed 11-13 miles; 60-80 H. P. 6 cyl. 4 cyc. motor installed last June; exceptional accommodation; two double staterooms; saloon 12 x 12 ft. and bathroom aft; galley, engine room and crew quarters forward. Independent electric lighting plant. Exterior and interior joiner work and decks of Honduras mahogany. In commission. Price low. Apply to Cox & Stevens, 15 William St., New York. Telephone Broad 1375.



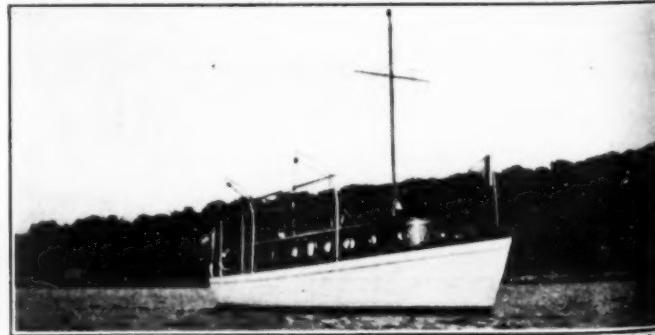
No. 1700.—For Sale—Exceptionally able and roomy gasoline cruiser; 62 x 11.6 x 4.8 ft.; built 1910; speed 11-12 miles; 60 H. P. 6 cyl. heavy duty Sterling motor; mahogany finish throughout; accommodations include large double stateroom, pilot house and saloon each with two berths, toilet room, etc.; headroom 6 ft. 6 in.; electric lights; completely found; in first class condition; built for comfort on long cruises and has proven very satisfactory. For further particulars apply to Cox & Stevens, 15 William St., New York.



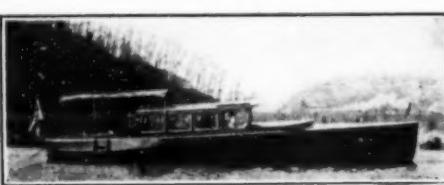
No. 2053.—Exceptional Bargain.—Bridge deck gasoline cruiser; 56 x 11 x 3.6 ft.; speed 11-12 miles; 35-45 H. P. 20th Century motor (installed 1912); double stateroom, saloon, toilet room and separate galley aft of engine room and crew's quarters; first class condition. Cox & Stevens, 15 William St., New York. Telephone Broad 1375.



No. 2116.—For Sale—Fast bridge deck day cruiser; 50 x 8 x 3 ft.; built 1911; speed up to 19 miles; 6 cylinder "Speedway" motor; very best construction; mahogany finish; motor controls at bridge; has awning over bridge and cockpit; best of type available. Price low. Cox & Stevens, 15 William St., New York.



No. 662.—For Sale—Hunting cabin cruiser; 40 x 9 x 3 ft. draft; N. Y. Yacht Launch & Engine Co. build; 15 H. P. 20th Century motor; speed 9 miles; 4 berths in saloon; toilet; finished in mahogany throughout; in good condition; has had best of care; complete inventory; offer wanted. Further particulars from Cox & Stevens, 15 William St., New York.



No. 1624.—Excellent Bargain—High speed, mahogany day cruiser; 40 x 7.6 x 2 ft.; built Fall, 1911; speed 20 miles; 90 H. P. 6 cyl. 4 cycle motor; only slightly used; will accept less than one-half original cost. Cox & Stevens, 15 William St., New York. Telephone Broad 1375.



No. 1075.—Up-to-date raised deck cruiser; 40 x 10 ft.; built 1911; Standard motor; speed 10 miles; stateroom and saloon; roomy after deck; construction of the best; complete inventory; price low. Cox & Stevens, 15 William St., New York.



No. 2074.—For Sale—Raised deck cruiser; 36 x 8 x 2.6 ft. draught; built 1910; 30-45 Sterling motor, 1911; speed 10 miles; stateroom and saloon, 6 ft. 2 in. head room; toilet, galley, etc.; electric lights; complete inventory and everything of the best; price right. Further particulars from Cox & Stevens, 15 William St., New York.

6 ft;
room;
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1375.

. Yacht.
berths in
the best of
service, 15

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3171

STANLEY M. SEAMAN

YACHT BROKER

220 BROADWAY, N. Y.
(ESTABLISHED 1900)

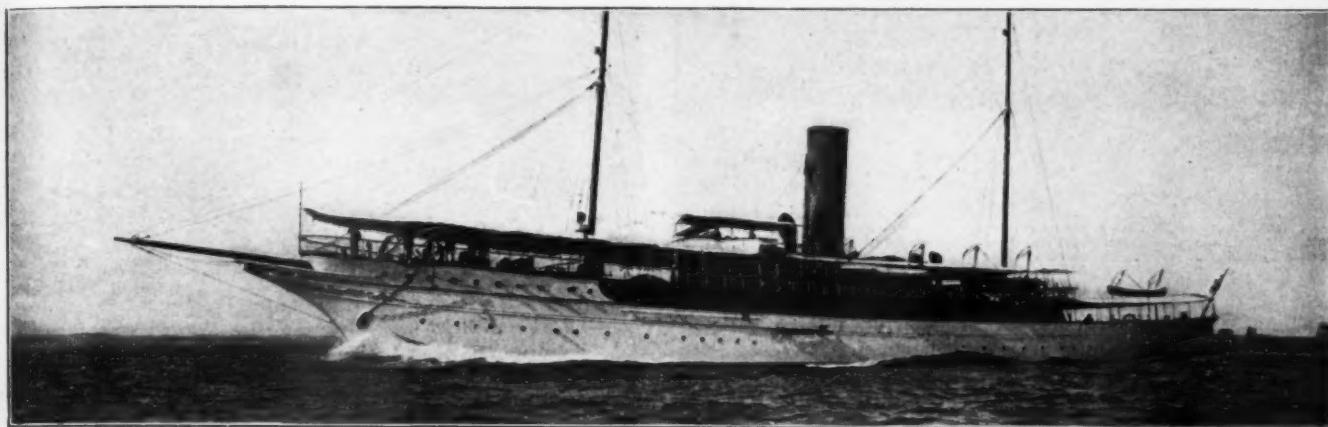
CABLE, "HUNTSEA" N. Y.

BRITISH CORRESPONDENT

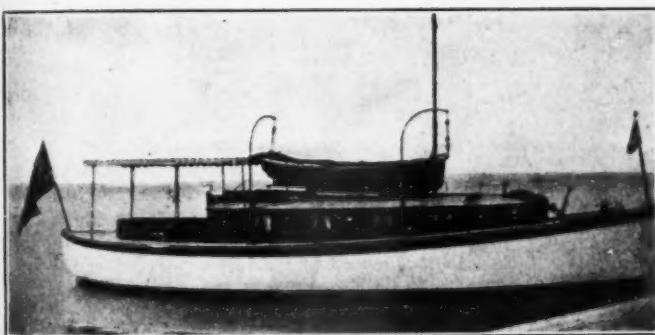
MARINE INSURANCE

My Illustrated Yacht List showing intending buyers, in concise form, over 150 pictures of the various types and sizes of the 2,000 or more yachts for sale and charter, has just been published and will be forwarded gratis to those interested.

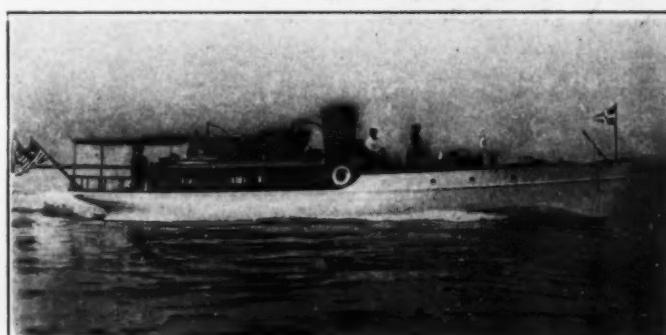
See Page 47 for Stanley M. Seaman's Other Attractive Offerings.



7032.—For Sale.—239 ft. steel ocean cruiser; every modern convenience. Stanley M. Seaman, 220 Broadway, New York.



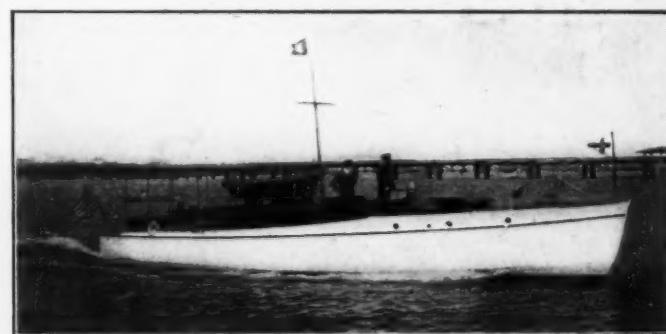
6664.—35 foot single-handed cruiser. 10 beam. Heavy construction. Cabin berths 4. Electric lighted. 25 h.p. Sterling; in perfect condition; speed 10 miles. Whole outfit in first class order. Very low price. Stanley M. Seaman, 220 Broadway, New York.



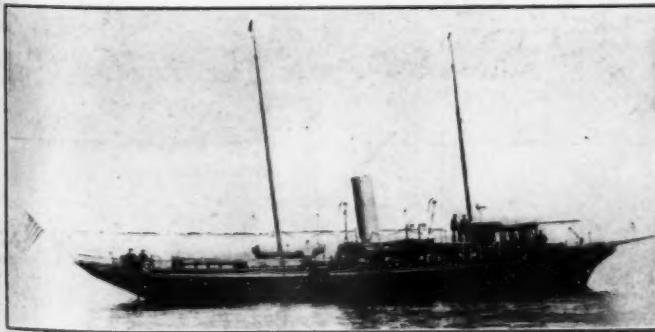
7106.—56 o. a.; speed 15 knots. Stanley M. Seaman, 220 Broadway, New York. New York City.



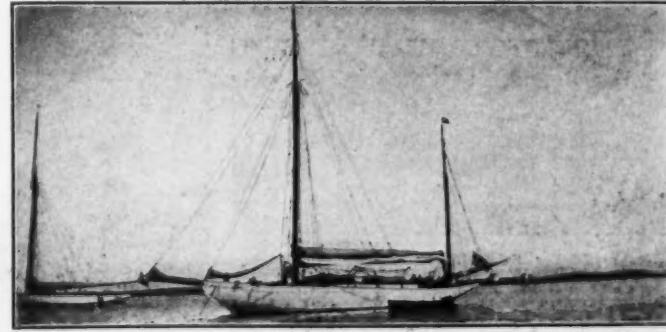
7120.—53 o. a.; new 1912; stateroom and saloon, berths 6. Stanley M. Seaman, 220 Broadway, New York.



7176.—Lawley cruiser 1912; 52 o. a.; speed 13 knots. Stanley M. Seaman, 220 Broadway, New York.



5571.—Seagoing steam yacht; 106x86.4x17.4x5.9; 4 staterooms and saloon for owner and guests; all modern conveniences; Seabury triple engine and boiler; speed 12 to 15 miles; economically maintained. Stanley M. Seaman, 220 Broadway, New York.



11487.—Keel Auxiliary Yawl; 72 x 53 x 16 x 6½; heavy construction; lead ballast; 2 staterooms and saloon, berth 5; 2 toilets; Murray & Tregurtha, new 1910; speed 7 miles; new sails 1913; new 14 foot launch 1912, and dinghy in davits; thoroughly overhauled 1912, making her good as new; low price. Stanley M. Seaman, 220 Broadway, New York.

NAVAL ARCHITECTS
ENGINEERS
BROKERS
MARINE INSURANCE

GIELOW & ORR

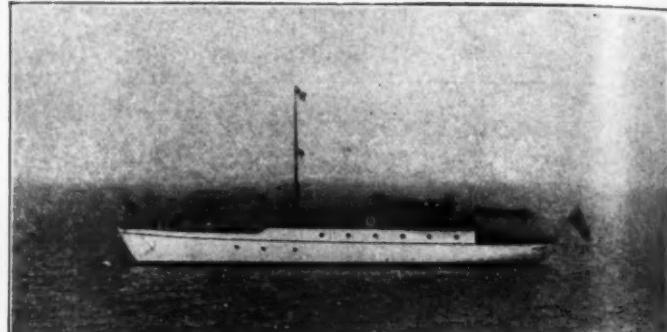
52 Broadway, New York

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Cable Address:
Crogie, New York
A. B. C. Code



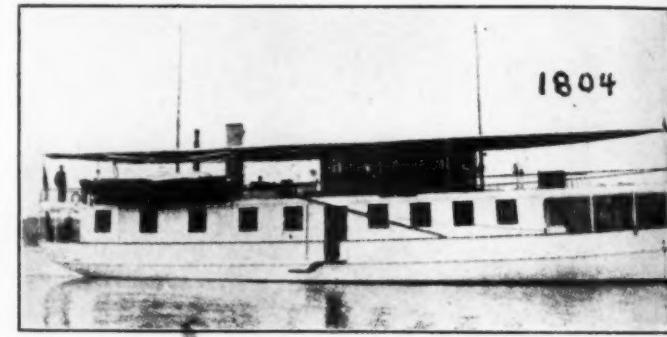
No. 1375. For Sale.—Fast cruising motor boat; exceptional type; 70' x 10' x 3' draft. Launched 1906. Six-cylinder, 60 h.p. Speedway; one-man control; 15 miles. Electric lights. Low price. Gielow & Orr, 52 Broadway, New York.
Please mention MOTOR BOATING.



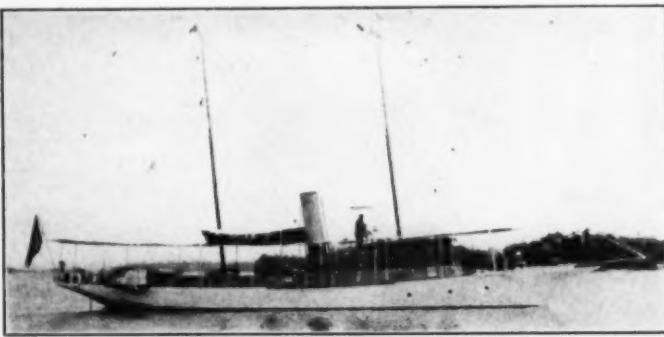
No. 1380. For Sale.—Low price. Particularly comfortable, fast, able, twin-screw cruising motor yacht. 71' x 12' x 3' draft. Our design. Launched 1906. Two large staterooms; saloon with two transom berths. Large bridge deck, cockpit aft. Equipped with two 4-cylinder, 6½" x 8" Speedway motors, installed 1911; speed 14 miles. One-man control. Electric lights, complete equipment. One of the best cruisers of this type available. Gielow & Orr, 52 Broadway, New York.



No. 1349. For Sale.—Power houseboat, 90' x 13' x 4½' draft. Very strong and substantially constructed. One double and two single staterooms. Large dining room and main saloon. Has good lines, making it easy to propel the vessel with one 4-cylinder, 6" x 7½" Buffalo motor of 24 h.p., which was installed 1908. Complete cruising equipment. Good condition throughout. Bargain. Gielow & Orr, 52 Broadway, New York.



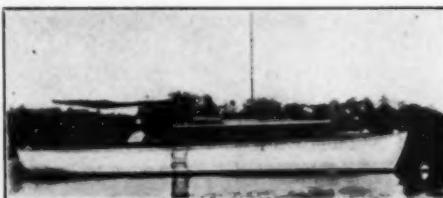
No. 1804.—Twin-screw power houseboat; our design; 84' 6" x 76' x 23' 6" x 4' 6" draft. Built 1906. Social hall 12' x 17'. Main saloon 12' x 20', headroom 6' 8". Three double staterooms. Sleeping accommodations for 11 in owner's party. Two baths, two toilets for owner; bath and toilet for crew. Hot water heating plant. Two 4-cylinder 9 x 10 Twentieth Century motors, 70 h.p. each. Must be seen to be appreciated. Price very reasonable. Gielow & Orr, 52 Broadway, New York.



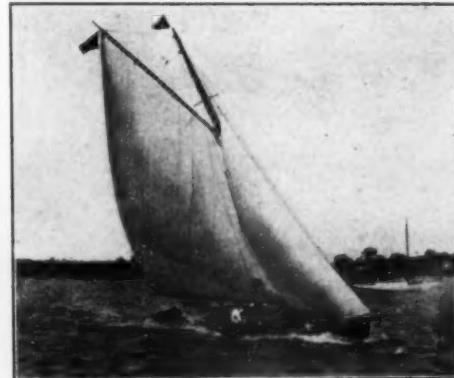
No. 73.—Lawley-built steam yacht, 75' x 12' 9" x 5' draft. Sound and in good condition, renewals having been made from time to time wherever required. Deck-house used as dining saloon, with galley below. Bridge aft of house. Large saloon, stateroom and toilet aft. Mahogany joiner work inside and outside. Fore and aft compound engine 8" x 16" x 12" stroke. Almy water tube boiler. Speed 12 miles. Well found. Now on St. Lawrence River, where it can be seen by appointment. Reasonable price. Gielow & Orr, 52 Broadway, New York.



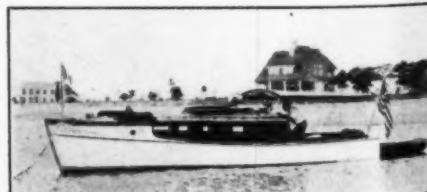
No. 3871. For Sale.—1912 raised deck cruiser, 34' x 9' x 2' 6" draft. Has raking bow and "V" stern. Oak frames, cedar planking. Interior finished in butternut. Cabin 14' long, 6' headroom. Sleeps three or four. Toilet and galley accommodations. Electric lights. Two-cylinder, 5' x 5' Ferro engine. Cockpit about 7½' long. Well found. Speed 9 to 10 miles. Reasonable. Gielow & Orr, 52 Broadway, New York.
Please mention MOTOR BOATING.



No. 1456. For Sale.—Handsome low trunk cabin cruiser, 38' 7" long, 8' 6" beam, 3' draft. Large cockpit. Sleeps four in cabin. Mahogany finish. Three-cylinder, 18 h.p. Standard motor. Well found. Fine order. Gielow & Orr, 52 Broadway, New York.



No. 3472.—Auxiliary keel knockabout, 35' overall, 20' w.l., 9' beam, 3' 8" draft; 5' headroom. Sails 1909. Spars, sails, standing and running rigging in good condition. Six h.p. Manus motor. Complete equipment. A very desirable boat of this kind. Low price. Gielow & Orr, 52 Broadway, New York.



No. 3279.—Fast raised deck cruising motor boat, 32' x 5½' x 2' draft. Built 1910. Well constructed. Interior finished in white and mahogany. Two extension transoms in cabin. Toilet and galley. Three-cylinder, 25 h.p. Ferro engine. Electric lights. Speed 13-15 miles. Well found. Good order. Gielow & Orr, 52 Broadway, New York.

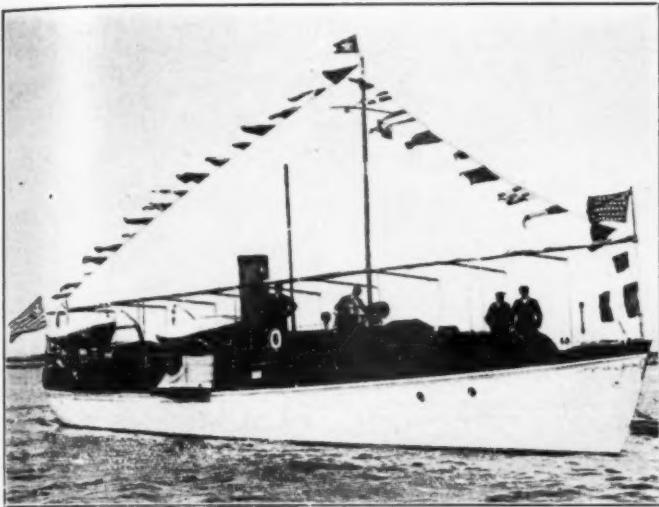
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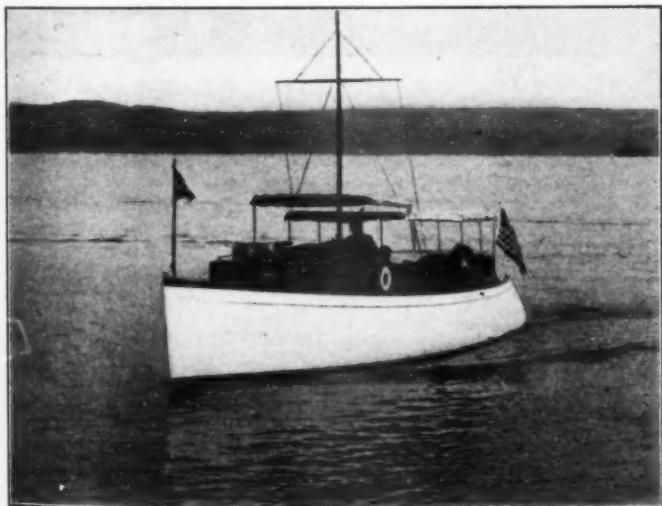


No. 3166. For Sale.—Twin screw motor yacht, 93' x 13' 6" x 4' 3" draft. Strong and substantially constructed, planked with yellow pine; copper sheathed on bottom. Launched 1906. Has always had good care and attention. Excellent ventilation, making boat well adapted for Southern service. All inside and outside joiner work of mahogany. Double stateroom with bathroom adjoining for owner arranged forward. Main saloon with two double transom berths aft, also toilet room; galley is very roomy and connects with saloon, which is used as dining-room. Two 6-cylinder, 8 x 10 air starting Standard engines; electric plant for lighting, heating, windlass and searchlight. Hot and cold water. Mahogany launch and dinghy. Speed 12/15 miles per hour. Good sea boat. Large bridge deck. This yacht should be inspected to appreciate what an elegant boat it is. Owner has larger cruiser, reason for offering this one for sale. Is well found, and in every way a desirable vessel. Gielow & Orr, 52 Broadway, New York.

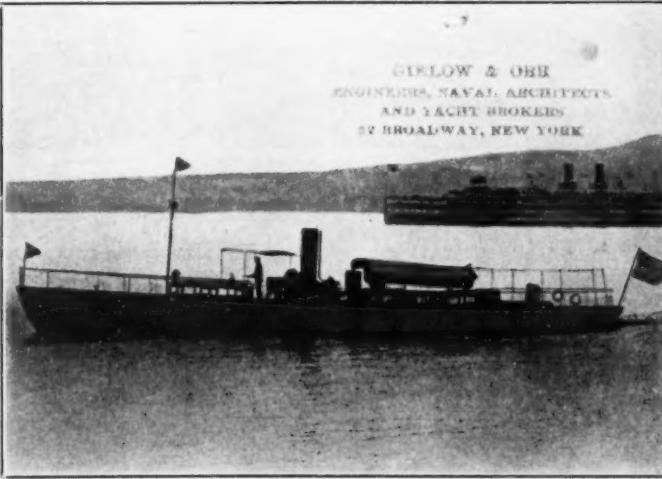


No. 2955. Flush deck keel auxiliary schooner—Cary Smith design. Launched 1901. Yacht is in perfect condition, having always been well kept up. There are three staterooms; one with single berth, one with double, and one with single and double. Saloon 11' long, full width of vessel, with two comfortable berths. Bathroom and two toilets. Length over all 95', water line 68', beam 20' 6", draft 10'. Spars, sails, rigging and awnings all in fine condition. Very fast sailer, having won eleven prizes in four cruises of New York Yacht Club. New power tender 1909 and three other boats. Water tank capacity 600 gallons. Equipped with 75 H. P. Globe gasoline engine; copper gasoline tanks of 300 gallons capacity. Inventory is very complete. An unusually good sea boat, very comfortable, and in every way desirable for racing or cruising. Must be seen to be appreciated. Attractive price. Gielow & Orr, 52 Broadway, New York.

Please mention MOTOR BOATING.



No. 2004. Day type cruiser, 45' x 8' x 3'. Built 1907. A-1 construction. Mahogany finished. Good sized toilet room. Comfortable cabin, with locker on either side long enough to sleep on. Steering platform at aft end of trunk cabin, followed by 4-cylinder, 32-40 H. P. Speedway motor, arranged for one man control at steering wheel. The large cockpit is the main feature of this desirable boat. Has always had best of care. Is now in excellent condition. Speed 12-13 miles. Price attractive. Gielow & Orr, 52 Broadway, New York.



No. 1095. For Sale.—"Herreshoff" Express type steam yacht, 81' x 10 1/2" x 3 1/2" draft. Launched 1901. Triple expansion engine. New water tube boiler 1910. Can run 100 miles on one ton of coal. Electric lights. Steers from bridge deck. Crew's quarters forward. Dining saloon in forward trunk cabin, arranged with two transoms, china and linen lockers, table, etc. Galley next aft. There is another cabin aft with toilet room adjoining. Cockpit aft, with awning over same. In spring of 1910 yacht received a thorough overhauling, including new boiler, new plumbing, new galley equipment, etc. Is now in good condition, subject to inspection. This is a very popular type of small steam yacht, attractive in appearance, economical to operate, and good sea boat. Speed up to 18 knots per hour. Seen near New York City. Price reasonable. Well found. Gielow & Orr, 52 Broadway, New York.

Please mention MOTOR BOATING.



No. 3942. For Sale.—High class twin screw motor yacht, launched 1909. Length 76', beam 14', draft 3' 6". Speed 12 miles per hour. Two 6-cylinder, 6 x 8 Standard motors. Hull copper sheathed on bottom. Dining saloon in deckhouse. Double stateroom; 4 transom berths in cabin; bath and toilet room; steers from bridge. Good deck room. Electric lights. Well equipped. Reasonable price. Gielow & Orr, 52 Broadway, New York.

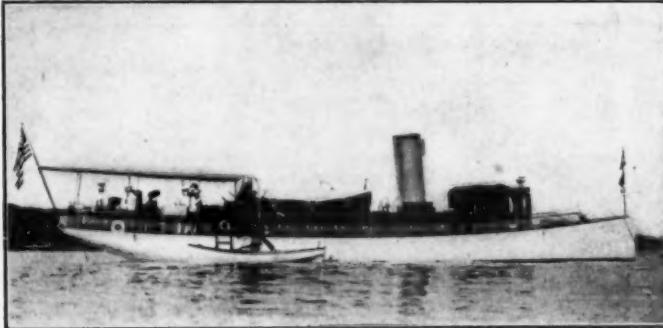
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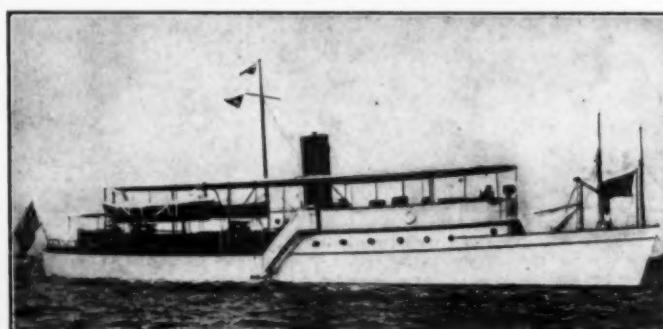
No. 366.—For Sale.—Unusually fine moderate size steam yacht; no expense ever having been spared to keep boat, machinery and equipment in best possible condition; built by Lawley; 64 ft. 6 in. overall; 57 ft. 6 in. w. l.; 12 ft. 6 in. beam; 4 ft. 2 in. draft; 6 ft. 2 in. headroom; fore and aft compound engine, 7 in. and 12 in. stroke; new Roberts water tube boiler, 1910; speed 10-12 knots; single and double stateroom; a berths in pilot house and 2 in cabin; owner's and crew's toilet; galley and forecastle; very complete equipment throughout; everything A-1; good sea boat; bargain. Gielow & Orr, 52 Broadway, New York.

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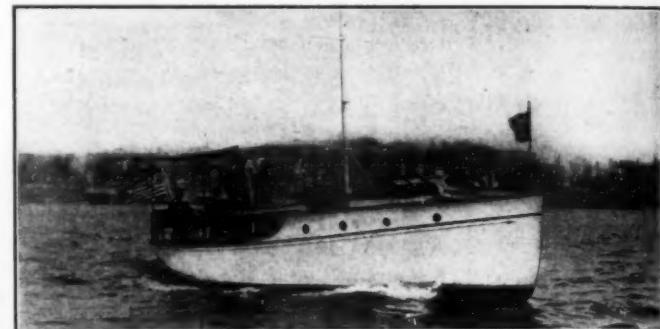
No. 3753.—For Sale.—Houseboat, 75 x 25 x 11/4 ft.; large rooms, saloon, three state rooms, sun parlor, galley, toilet, lavatory, running water; handsomely furnished, including piano, beds, hair mattresses, Shipmate range, cooking utensils, china, etc. Large upper deck; awnings, wicker furniture, anchors and chains, including 21-ft. 51/2 H. P. open launch, skiff and dinghy. \$3,000 recently spent on improvements. An ideal Summer home; price very reasonable. Gielow & Orr, 52 Broadway, New York.

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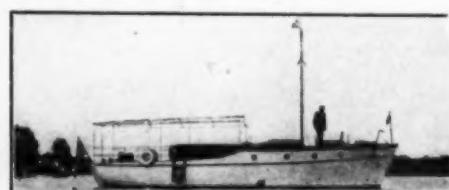


No. 1406.—For Sale.—92 foot sea-going cruising yacht; 20th Century motor; best furnished and fitted yacht of her size on the coast. Gielow & Orr, No. 52 Broadway, New York.

Please mention MOTOR BOATING.

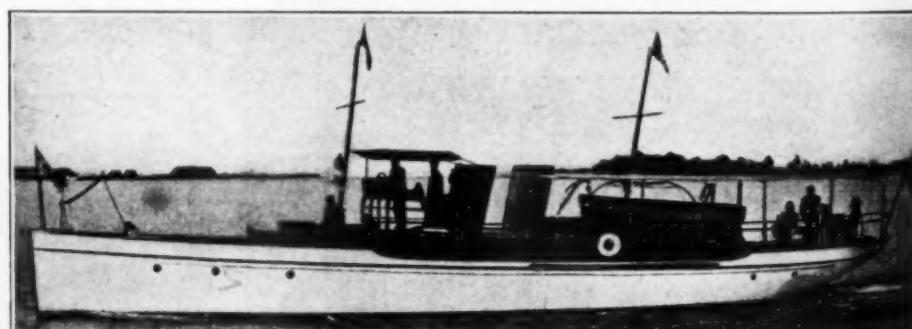


No. 3411.—For Sale.—"Elo" raised deck cruiser, 40 ft. x 9 ft. 8 in.; built 1911. One double stateroom forward; cabin with 2 transoms and 2 hinged berths; toilet room and galley; joiner work finished in white and mahogany; flush deck aft with awning and rail around same; 4 cyl. 5 x 6 1/2 in. Standard engine, arranged for one man control at steering wheel; very seaworthy; fine order; complete cruising equipment; speed to miles; price reasonable. Gielow & Orr, 52 Broadway, New York.



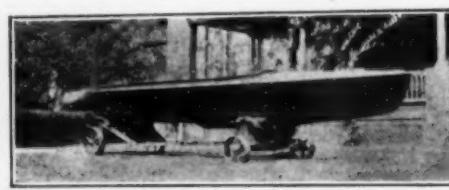
No. 2317.—For Sale.—Raised deck cruiser, 39 ft. x 9 ft. x 3 ft. draft; built 1908. Double stateroom and saloon, toilet and galley, sleep 4 or 5. Built for Marblehead-New Rochelle race, finishing fifth among thirteen contestants. Very attractive, strong, roomy and seaworthy boat. Self-bailing cockpit; 4 cylinder, 4 cycle 28 H. P. motor, 1909; electric light plant; ample locker capacity; full headroom; interior finished in mahogany, white enamel and cherry; 12 ft. round bottom dinghy; speed better than 10 miles; an exceptionally good boat at a low price. Gielow & Orr, 52 Broadway, New York.

Please mention MOTOR BOATING.



No. 3941.—Sale or Charter.—Twin screw cruiser, 72 ft. x 12 ft. x 4 ft.; built by Matthews, 1911, on lines of steam boat. Substantially constructed, beautifully finished in African mahogany below decks. Teakwood finish on deck. Afterdeck sufficiently large to accommodate fifteen comfortably. Large bridge deck. Double stateroom, two berths in dining saloon, four berths in cabin. Toilet for owner and crew. Two 4-cylinder, 7 1/2 in. x 10 in. Murray & Treger gurtha engines, arranged for one man control. Speed 12 1/2 to 13 1/2 miles. Heated and lighted by electricity. The two stacks shown afford excellent ventilation. The forward one could be removed if desired and seat arranged at this point. Price reasonable. Gielow & Orr, 52 Broadway, New York.

Please mention MOTOR BOATING.



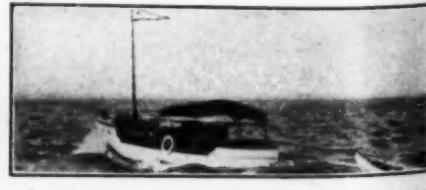
No. 4042.—Hydroplane hull, 25 ft. x 5 ft., round bow, square stern, mahogany planked; has only been in the water three days; has three steps; with 36 H. P. motor a speed of 23 miles per hour was obtained; owner will sell at reduced price. Gielow & Orr, 52 Broadway, New York.

Please mention MOTOR BOATING.



No. 3129.—Bargain.—Family launch, 22 ft. x 7 ft. 4 in.; built 1909; fine order; 4 cyl. 4 cycle, 21 H. P. Truscott motor arranged forward. Bosch ignition, bulkhead control; 8 ft. forward cockpit; 10 ft. after cockpit separated by glass bulkhead and door; electric lights; 10-12 miles; well found. Gielow & Orr, 52 Broadway, New York.

Please mention MOTOR BOATING.



No. 3966.—For Sale.—Attractive figure, raised deck cruiser, 37 ft. x 8 ft. 6 in. x 3 ft. 4 in.; built 1910; cabin 12 ft.; large cockpit; 24 H. P. Trebert motor; fully found; fine sea boat. Gielow & Orr, 52 Broadway, New York.

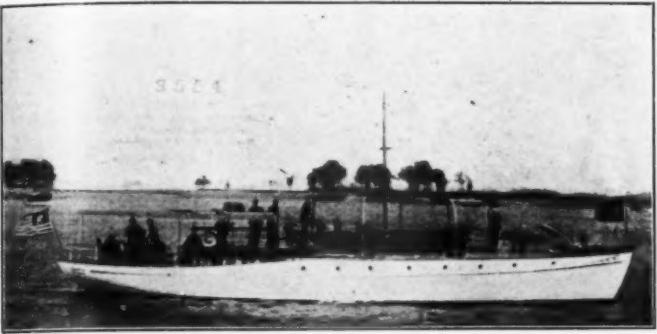
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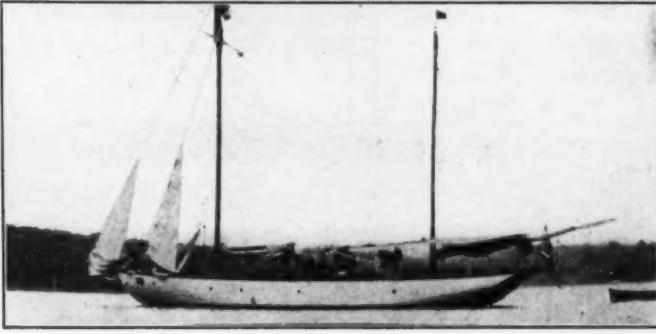
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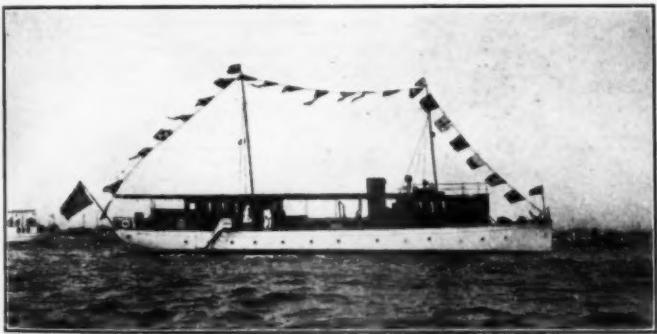
No. 3554.—For Sale. Unusually comfortable and able raised deck cruiser, 65' x 15' 2" x 4' draft. Built 1909. One double and one single stateroom; saloon with two extension transoms. Interior finished in white and mahogany. Four-cylinder 8" x 10" Standard motor, 50-65 H. P., giving speed up to 12 miles. Is good seaboat, well found, and a desirable boat for offshore service. Attractive price. Gielow & Orr, 52 Broadway, New York.

Please mention MOTOR BOATING.



No. 3303. For Sale.—Centerboard auxiliary ketch rigged yacht, 92' overall, 76' w. l., 20' beam, 5 1/2' draft. Launched 1910. Flush deck and cockpit. Numerous skylights, hatches and port lights give perfect ventilation, adapting the boat for service in either Southern or Northern waters. Two double and two single staterooms, and a saloon 15' long full width of vessel. Two bathrooms, one with tub and one shower; basins in staterooms. Independent electric light plant. Four-cylinder, 40-65 H. P. Murray & Tregurtha engine. Ratsay sails. Two launches and dinghy. Well equipped, fine order throughout. Considered one of the best shoal draft yachts of its kind available. Inspection invited. Price reasonable. Gielow & Orr, 52 Broadway, New York.

Please mention MOTOR BOATING.



No. 3484. For Sale.—Exceptionally comfortable high-class twin-screw motor yacht, 98' x 16' x 5 1/2' draft. Launched 1910. No expense spared in construction, finish or equipment. Has two double, one single staterooms, one transom berth in lobby and two in after deckhouse; bathroom for owner and one for guests; two toilets for crew. Two 6-cylinder, 8 x 10 Standard engines. Dining saloon in forward deckhouse; social hall in after deckhouse, equipped with Hardman self-playing piano. Electric light plant. Fine power tender—in fact, everything for comfort and convenience will be found on this yacht. Speed 12-14 miles. Excellent seaboat. Gielow & Orr, 52 Broadway, New York.

Please mention MOTOR BOATING.



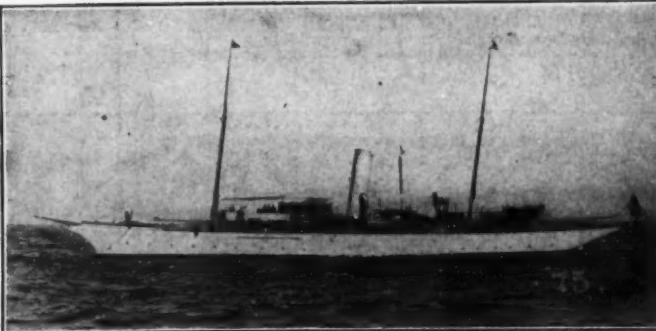
No. 3005. For Sale.—Gielow design raised deck cruiser, 60' 6" x 55' 7" x 12' x 3' 6" draught. Main cabin with three transom berths, double and single staterooms, two toilets, engine room, galley and forecastle. Interior finish mahogany, white ceilings. Headroom 6' 6". Engine new 1910; 40 H. P., 4-cylinder, 4-cycle, speed 10 miles. Handsomely finished; attractively refurnished throughout, 1910. Reasonable price. Particulars from Gielow & Orr, 52 Broadway, New York.

Please mention MOTOR BOATING.



No. 43. For Sale.—Flush deck auxiliary schooner; keel and C. B. below cabin floor; 95' x 68' x 20' 4" x 10' draft. Cary Smith design. Launched 1901. Strongly constructed. Yellow pine planking. Thirty-two tons, outside lead ballast. Two double and one single staterooms. Saloon 16' long full width of vessel. Bath and toilet rooms aft. All skylights, companionway and hatches mahogany. Lower sails new 1911. Light sails 1912. New 4-cylinder, 50 H. P. "Automatic" engine 1912. Electric lights. Two launches. Completely equipped, including piano. Very staunch. Fast sailer. Has always been well kept. Believed to be best yacht of its kind available. Price reasonable. Gielow & Orr, 52 Broadway, New York.

Please mention MOTOR BOATING.



No. 75. For Sale.—Single screw sea-going steel steam yacht, American register, 200' overall, 24 1/2' beam, 12' draft; 550 gross tonnage. Bunker capacity, 165 tons. Equipped with evaporator for fresh water, ice machine, laundry—in fact, has all comforts and conveniences for offshore cruising. Total sleeping accommodations for 16 in owner's party. Triple expansion engine and four water tube boilers; economical on coal consumption. Cruising speed 11 knots. Has two launches and four other boats. Well equipped and in good condition. Has made several European cruises, and is a fine seaboat. Gielow & Orr, 52 Broadway, New York.

Please mention MOTOR BOATING.

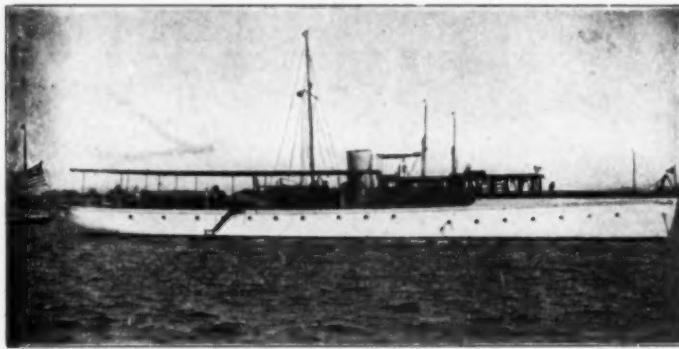
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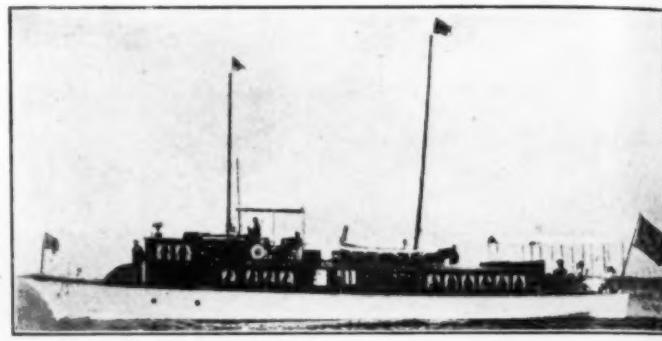
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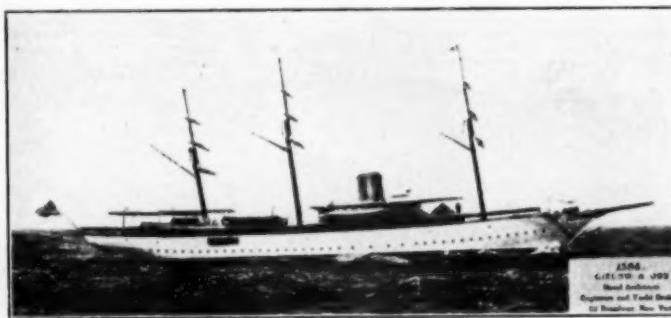
No. 3442.—Sale. Charter 118 ft. steel, 16-18 miles. Twin screw. Roomy. All conveniences.

Please mention MOTOR BOATING.



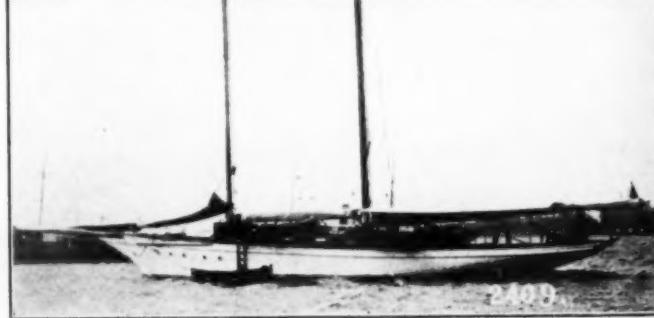
No. 1678.—Sale. 80 ft. x 14 ft. 6 ins. x 4 ft. 6 ins. Comfortable. Roomy.
70 h.p. 20th Century motor.

Please mention MOTOR BOATING.



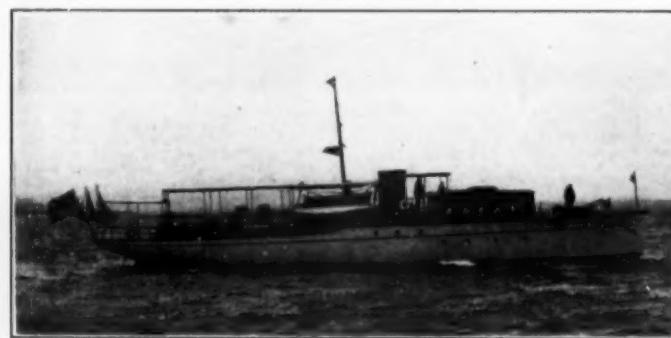
No. 1384.—Sacrifice. 254 ft. x 35 ft. x 14 ft. Steel. Twin screw. Unusual opportunity to secure genuine bargain.

Please mention MOTOR BOATING.



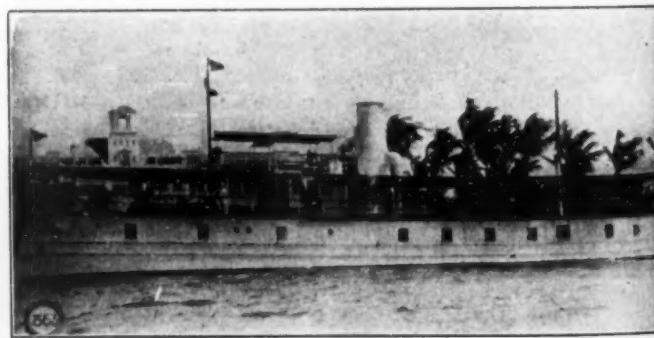
No. 2409.—Auxiliary. Centerboard, 90 ft. x 65 ft. x 21 ft. x 4 ft. 6 ins. New 100 h.p. 20th Century motor. Owned by an estate.

Please mention MOTOR BOATING.



No. 3910.—Sale. Twin screw. 90x15x4 ft. Built 1912. One of best cruisers available, modern throughout.

Please mention MOTOR BOATING.



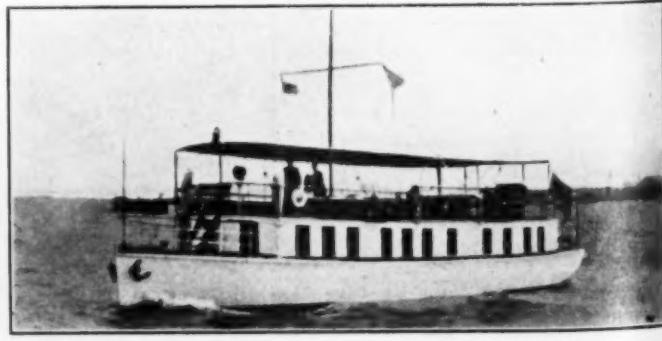
No. 1234.—Sale. Charter. 116 ft. twin screw steam houseboat. 10-11 miles. Unusually comfortable.

Please mention MOTOR BOATING.



No. 3556.—Sale. Charter. Twin screw. 75 ft. x 13 ft. 6 ins. x 4 ft. Built 1911. Fine modern cruiser. Low price.

Please mention MOTOR BOATING.



No. 3491.—Sale. 70 ft., high class, twin screw power houseboat; 3 double staterooms.

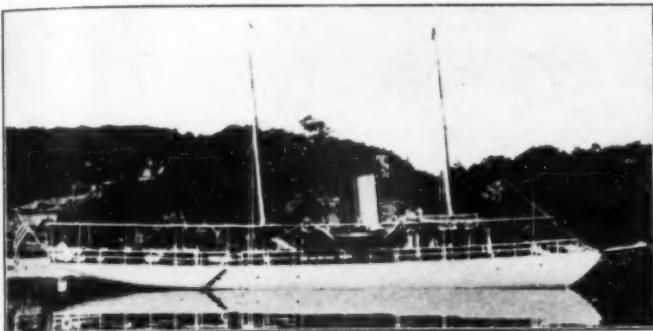
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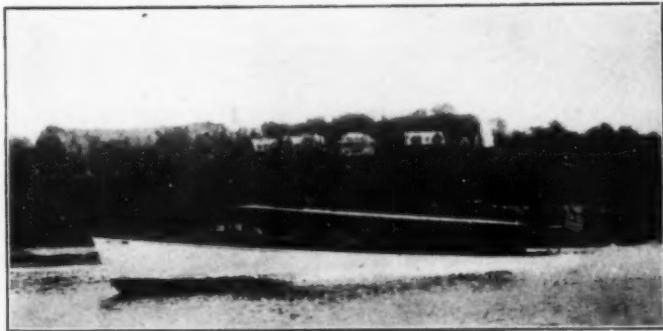
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Offer for sale the following yachts, a number of which are also available for Southern charter.

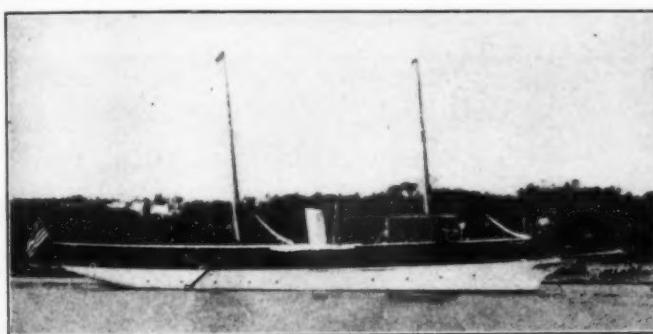


No. 530.—For Sale, at reasonable figure, cruising steel steam yacht, 94 ft. x 27 ft. x 14 ft. 1 in. x 6 ft. draft. Triple expansion engine, Almy water tube boiler. Speed, 14 miles. Dining saloon on deck, main saloon below, having sofa berths, 3 staterooms, 2 water closets, good galley, engine room and crew's quarters. Very economical to run, has steamed 1041 miles on 23 tons of coal. Yacht, machinery and boiler in perfect condition.



No. 7310.—For Sale.—At reasonable figure, fast twin screw motor yacht, 70 ft. x 8 ft. 6 ins. x 2 ft. 6 ins. draught. Built 1906. 2 Speedway, 6 cylinder motors, 100 h.p. each. Speed, 23 miles guaranteed. Large forward and after cockpit. Good sized saloon. Toilet room. An ideal boat for fast ferry service.

Please mention MOTOR BOATING.



No. 178.—For Sale, at a bargain. Modern steam yacht 128 ft. x 104 ft. x 16 ft. 4 ins. x 7 ft. draft. Built by Lawley, 1902. Triple expansion engines, Almy water tube boiler. Speed, 13 knots. 2 double and 1 single staterooms. Main saloon, dining saloon, bath, and 3 water closets. Yacht in A1 condition.

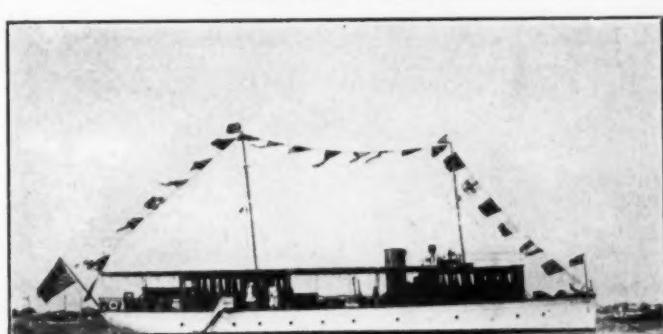


No. 7968.—For Sale. Practically new fast runabout. Built 1910 and very little used. 45 x 6 ft. 2 ins. x 3 ft. draft. 110 h.p. Jencick motor. Speed 23 miles. Helm, cockpit, after cockpit, small cabin with transoms, W. C. & W. B.

Please mention MOTOR BOATING.

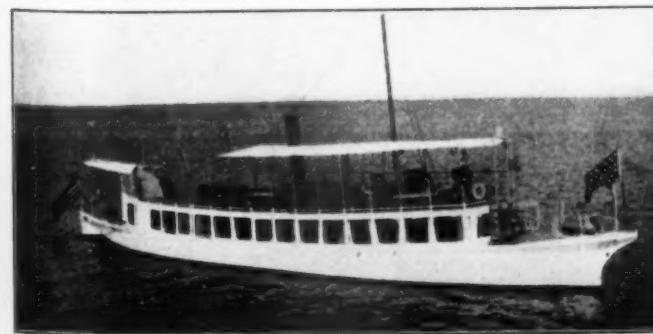


No. 7186.—For Sale. At a reasonable figure, fast and able cruising motor yacht, 90 ft. x 80 ft. 12 ft. x 5 ft. draft. 300 h.p. 6 cylinder Standard motor. Speed 20 miles. Carries 1000 gallons gasoline. Has 2 saloons, 2 staterooms, galley and engine room. Has 2 lighting plants, electricity and acetylene gas.

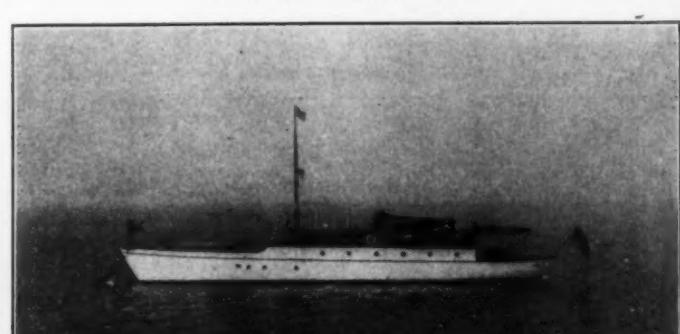


No. 7997.—Sale, Charter. Desirable 98 ft. motor cruiser, two 75 h.p. Standard motors.

Please mention MOTOR BOATING.



No. 1869.—For Sale or Charter. Practically new gasolene house boat, built 1911. 80 ft. x 60 ft. x 18 ft. x 4 ft. 3 ins. draft. 37½ h.p. Automatic motor. Speed, 7 miles. Carries 100 gallons of gasoline and 1000 gallons of water. 4 good sized staterooms, and extra accommodations, very large saloon, bathroom, 2 water closets, galley and engine room, with berths for crew. 7 ft. headroom. Lighted by acetylene gas. Very well ventilated.



No. 7314.—For Sale. Twin screw 71 ft. motor cruiser, two 50 h.p. Speedway motors. Speed 14 miles.

Please mention MOTOR BOATING.

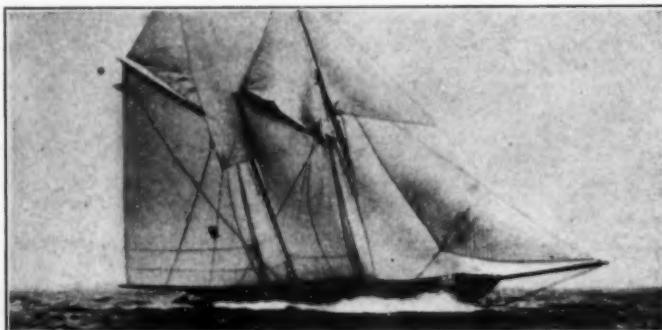
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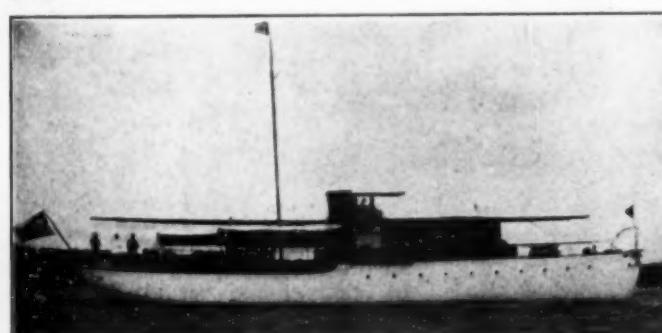
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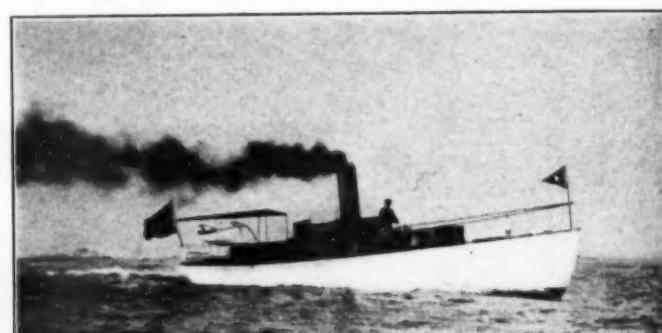
No. 97.—For Sale at Low Figure.—Auxiliary schooner yacht, 115 x 86 x 22.6 x 13.6 ft. draft. Designed by us and built by Lawley; 100 H. P. Standard motor; speed 9 knots. Complete suit of sails. Most complete electric light plant. Good owner's quarters, consisting of main saloon, four staterooms and bathroom. Unusually able boat for offshore work. A fast sailer; handles beautifully. In best possible condition throughout.



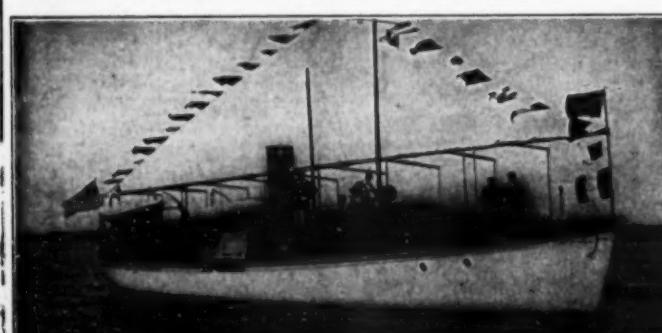
No. 1045.—For Sale.—Flush deck cruising schooner yacht, 97.4 x 70 x 19.6 x 8.6 ft. Designed by us and built by Lawley. Large saloon, three staterooms, two baths, three W. C.'s; good size galley and pantry; Ratsey sails; 75 H. P. motor; speed 8 miles; 170 gallon gasoline tank. Lighted by acetylene gas. Very fast under sail, and an exceptionally able and seaworthy craft.



No. 7877.—For Sale, Price Attractive.—Modern raised deck cruiser, 90 x 83 x 17 x 3.6 ft. draft. Built by Lawley, 1909. Saloon, three good sized staterooms, galley, pantry, valet's room, bathroom, three W. C.'s, dressing room, engine room and crew's quarters. Lighted by electricity and hot water heating system. Two 60 H. P. Craig motors, thoroughly overhauled and brought up to date by makers, 1913.



No. 616.—For Sale.—Fast express type steam yacht, 82 x 72 x 10.7 x 2.6 ft. draft. Designed and built by Herreshoff. Triple expansion engines; speed 20 miles. Bunker capacity 5½ tons. Lighted by electricity. Has two large saloons, toilet room, galley, engine room and good crew's quarters. An ideal boat for fast ferry service and a good seaboat.



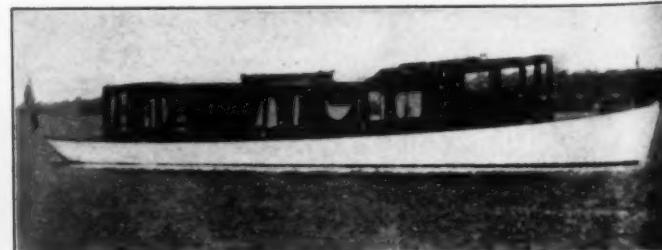
No. 7286.—For Sale at a Reasonable Figure.—Fast, modern twin screw cruising motor yacht, 93 x 85 x 13.6 x 3.6 ft. draft. Two Standard motors, 110 H. P. each; speed 15 miles. Independent electric light plant. Stateroom with two berths; saloon with transoms; bath, three W. C.'s, large galley, engine room and crew's quarters. Yacht and machinery thoroughly overhauled and in A-1 condition.



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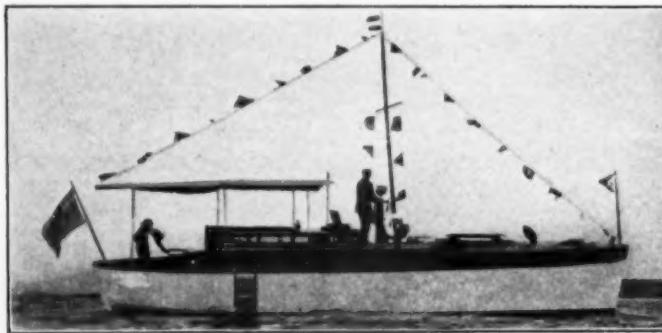
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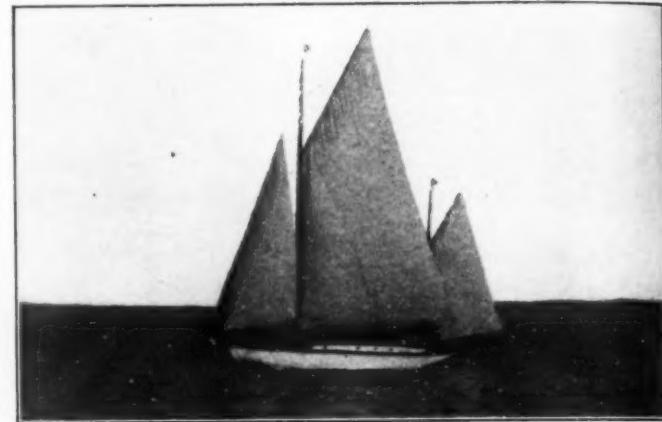
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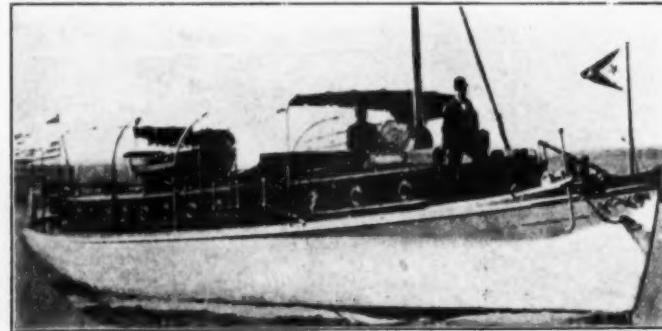
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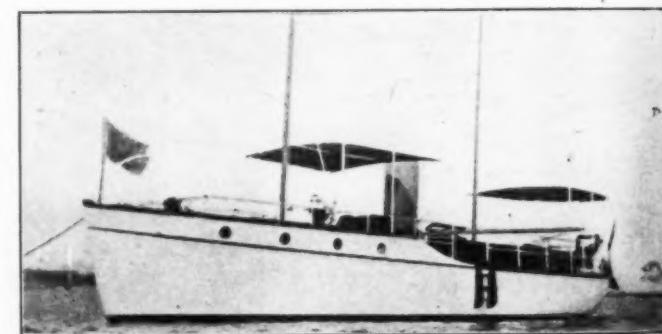
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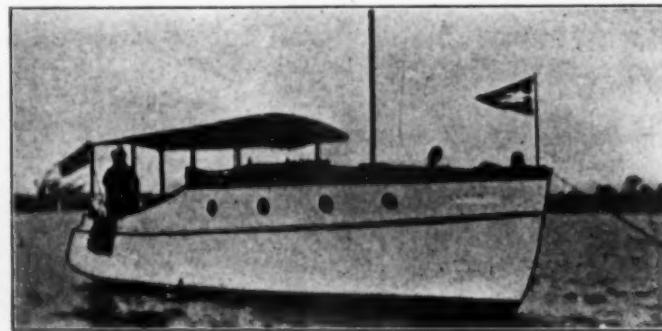
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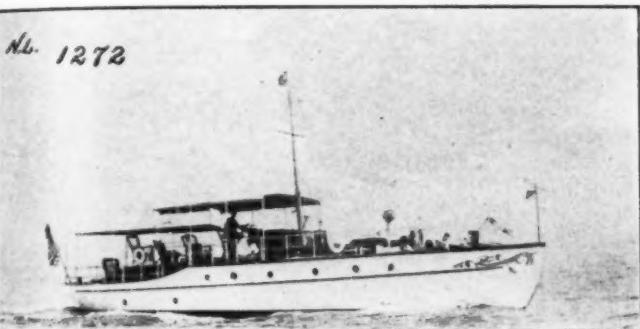
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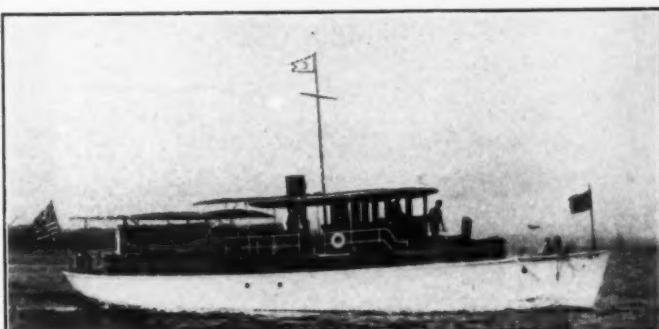
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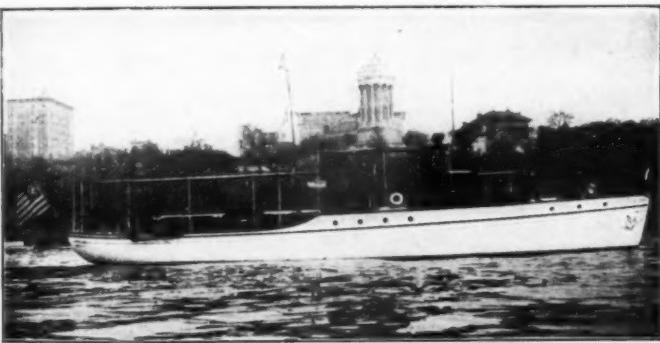
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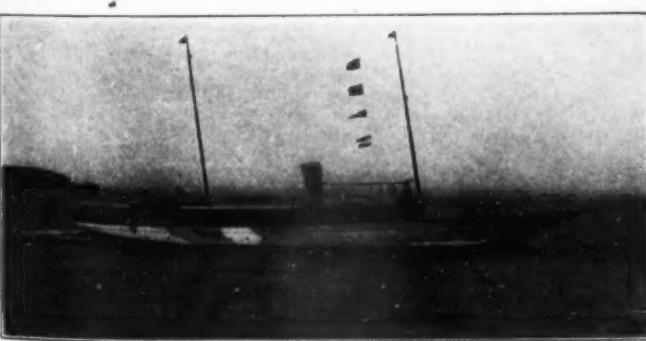
No. 1333.—Twin screw; 70 ft.; three staterooms.



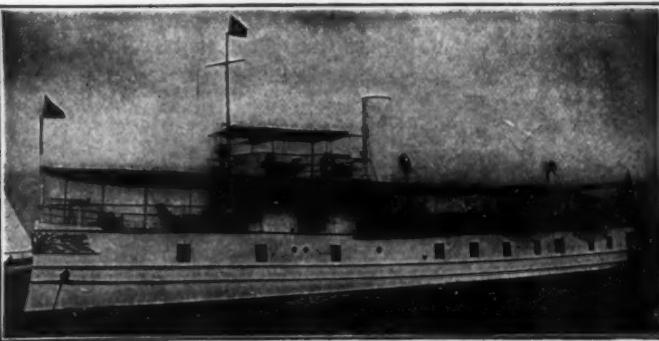
No. 1238.—75 ft. twin screw cruiser; three staterooms, dining saloon, bath. Speed 14 miles.



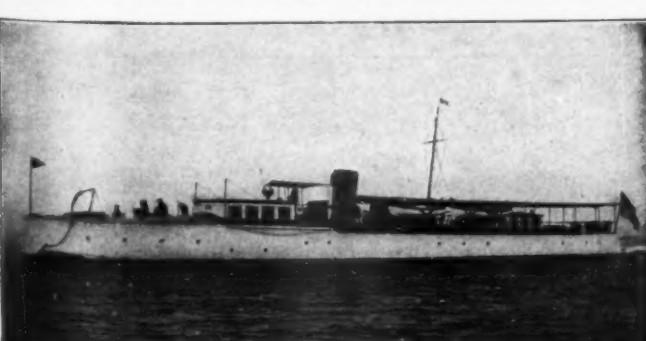
No. 1315.—Twin screw motor yacht; 90 ft. Large dining saloon, three staterooms, bath. Speed 14 knots.



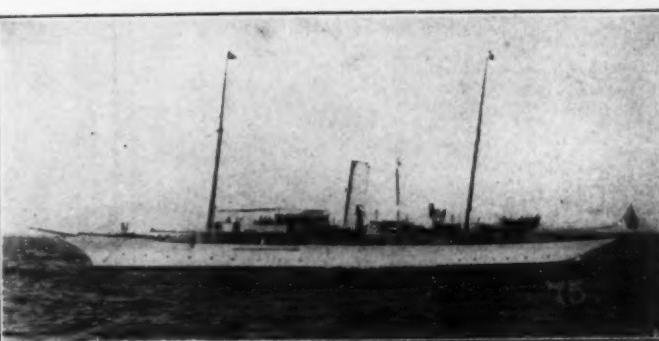
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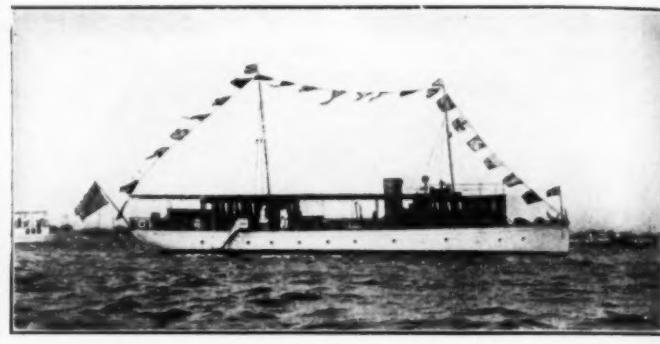
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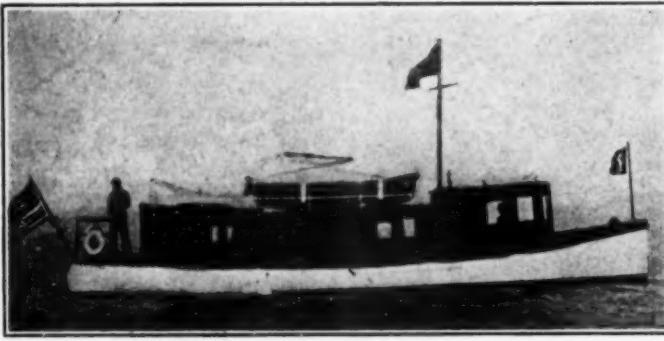
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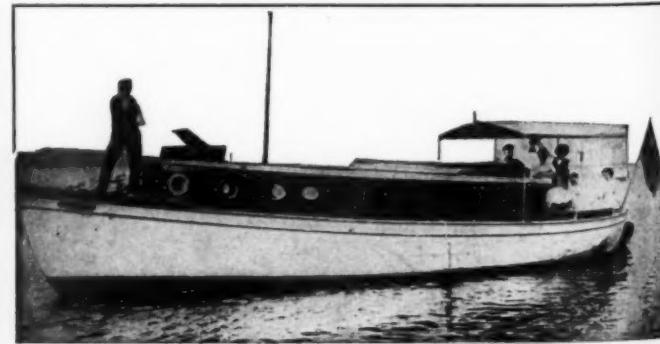
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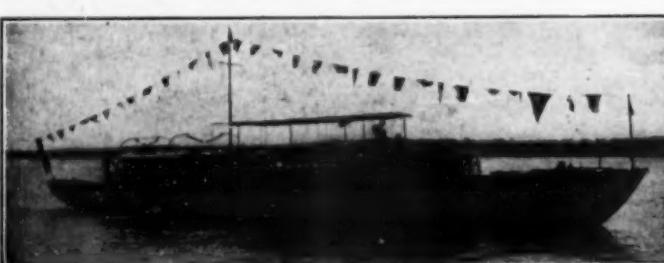
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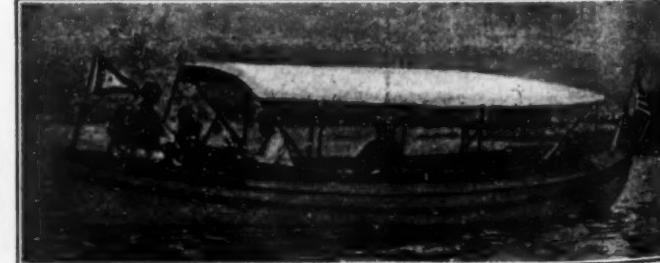
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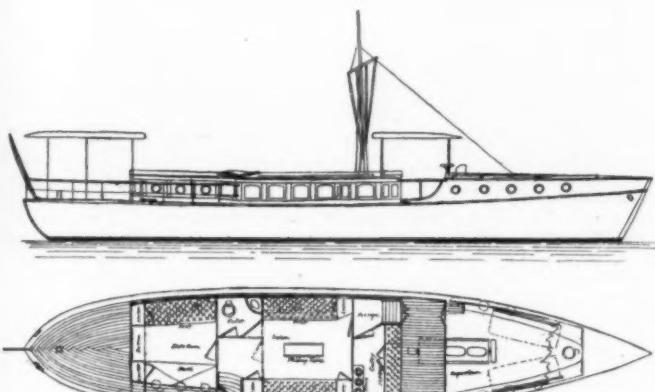
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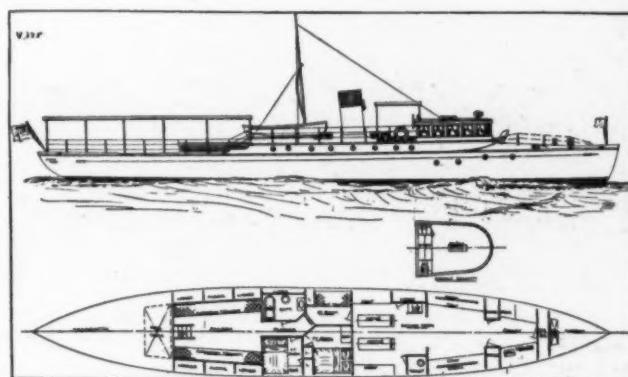
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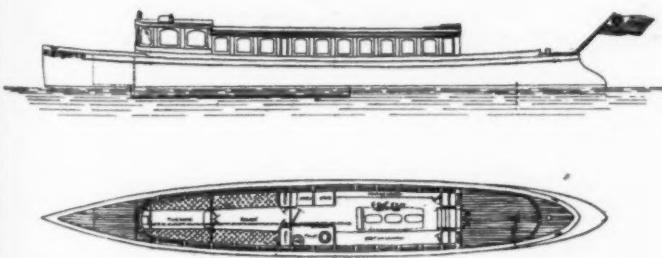
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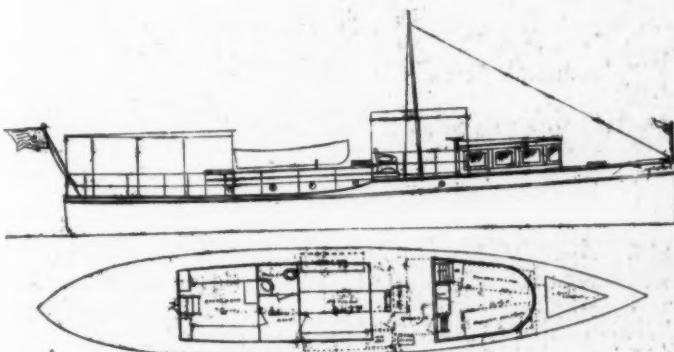
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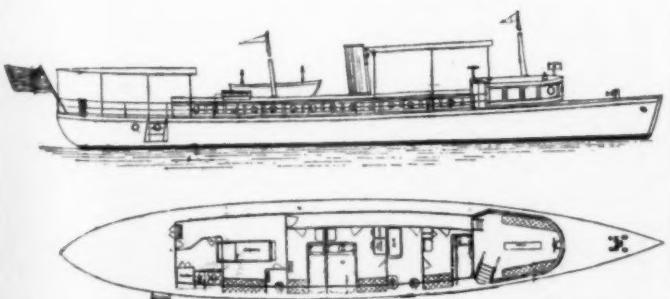
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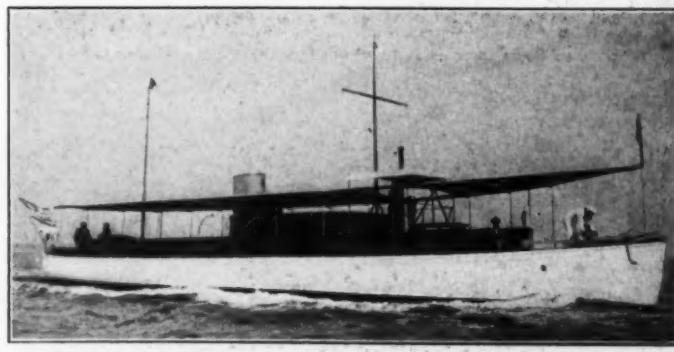
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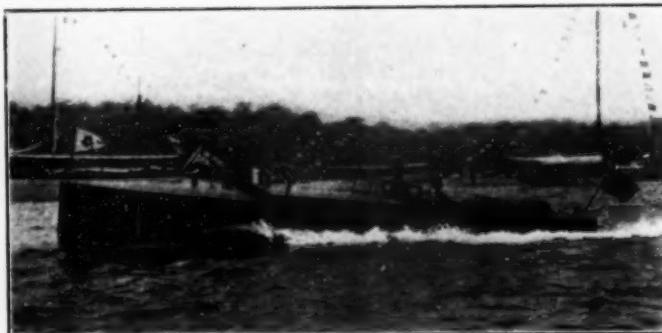
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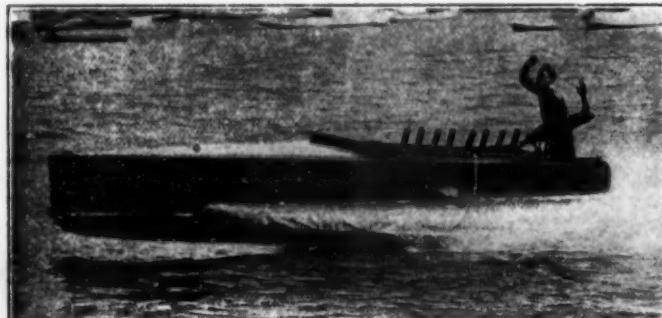
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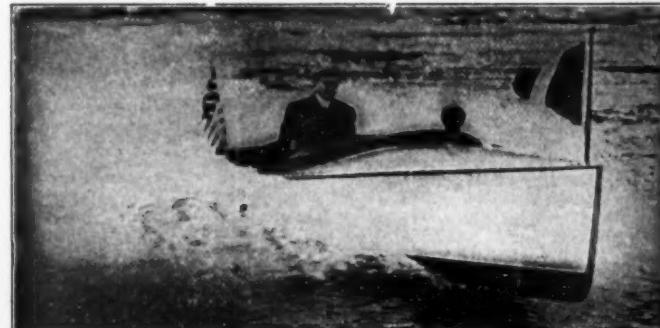
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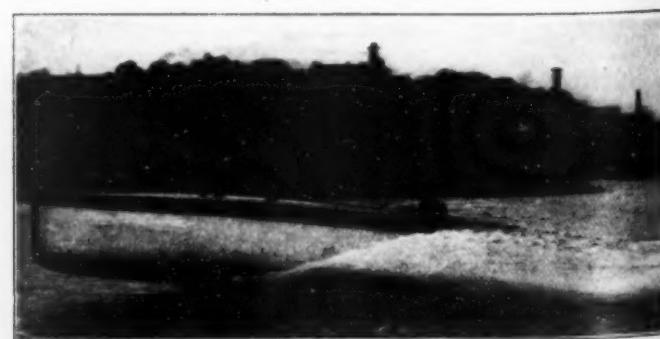
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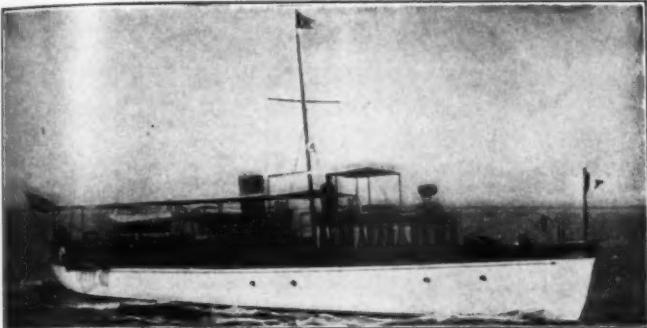
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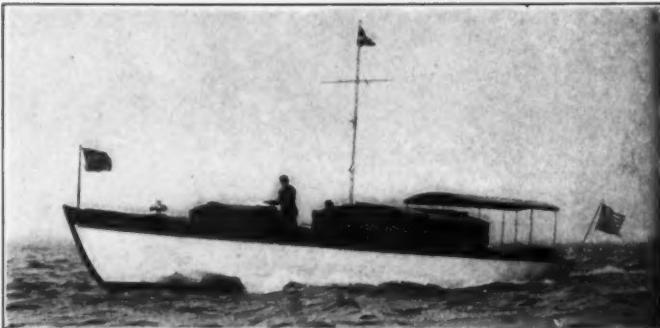
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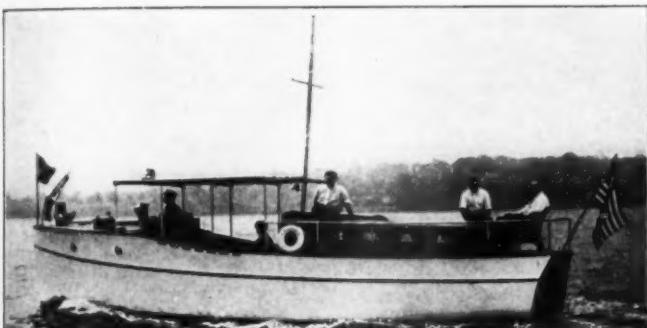
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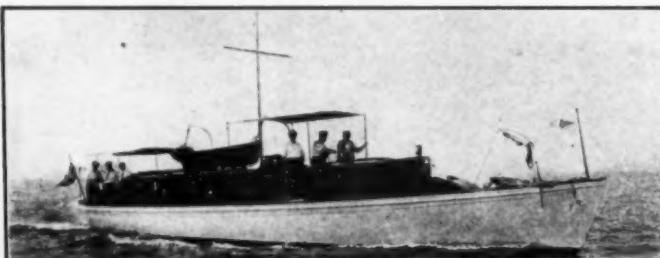
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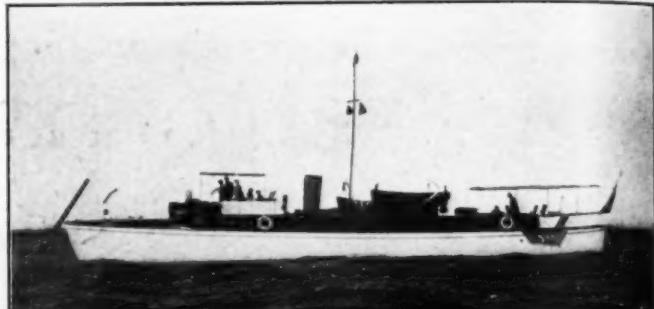
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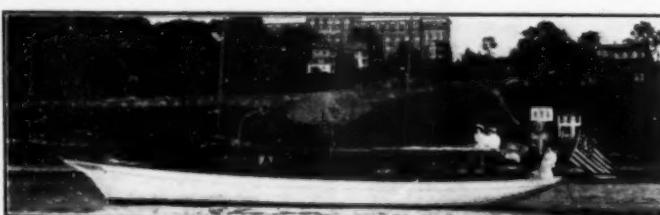
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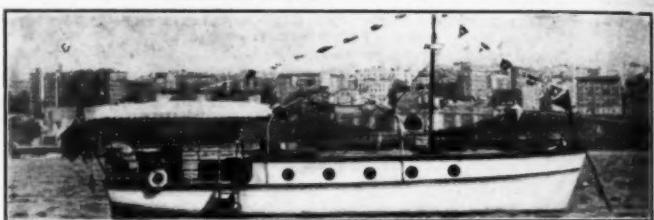
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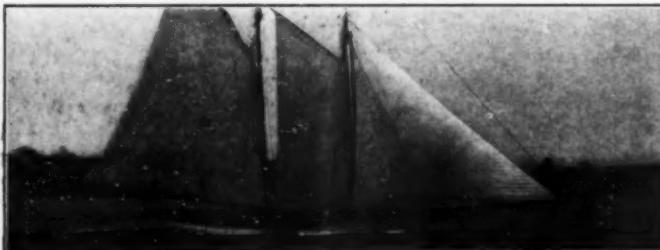
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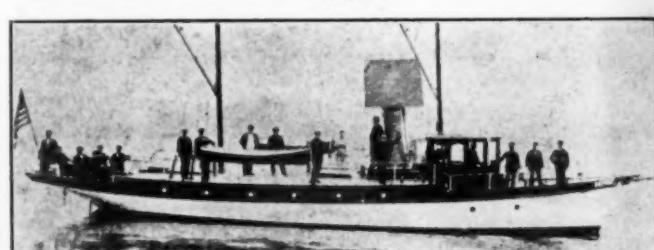
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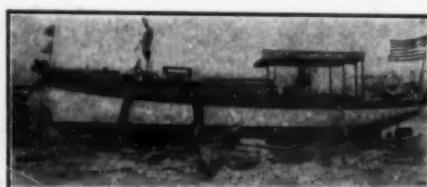
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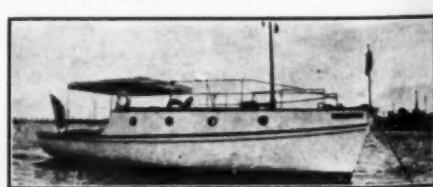
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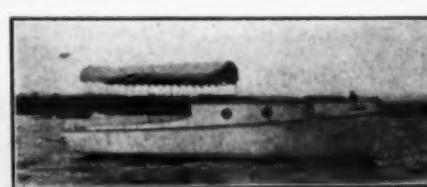
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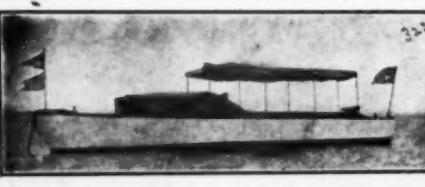
No. 343.—Auxiliary yawl, 50 x 39 x 15 x 5; 25 H. P. Globe; excellent condition; complete inventory; bargain for quick buyer.



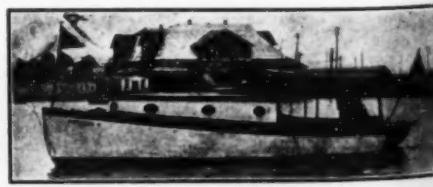
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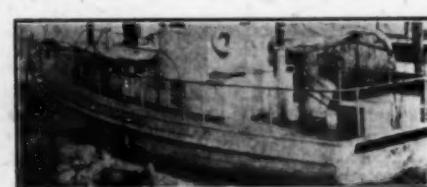
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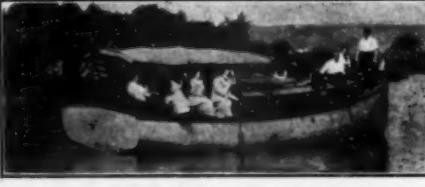
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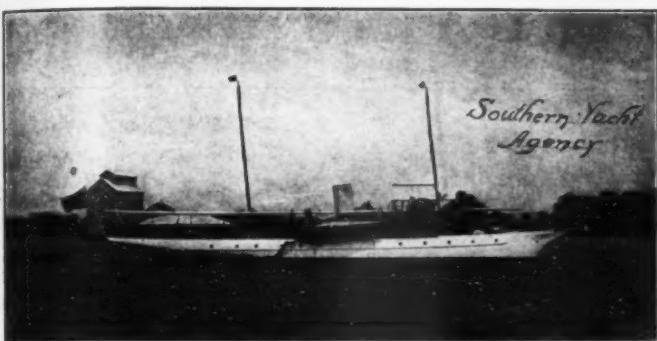
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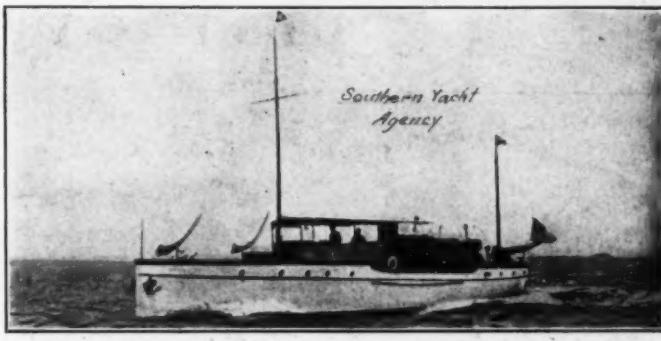
BALTIMORE, MD.

BELOW ARE A FEW OF THE MANY BOATS WE HAVE FOR SALE AT ATTRACTIVE PRICES

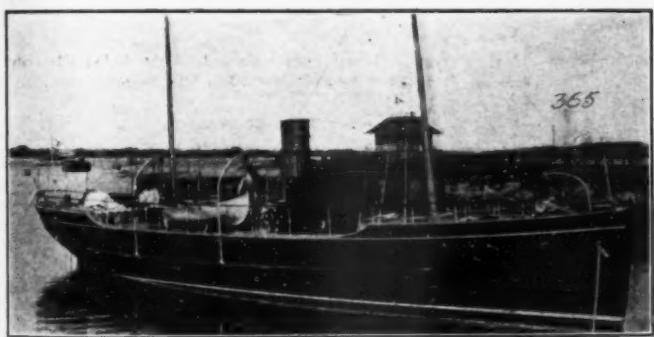
We also have some very fine auxiliaries



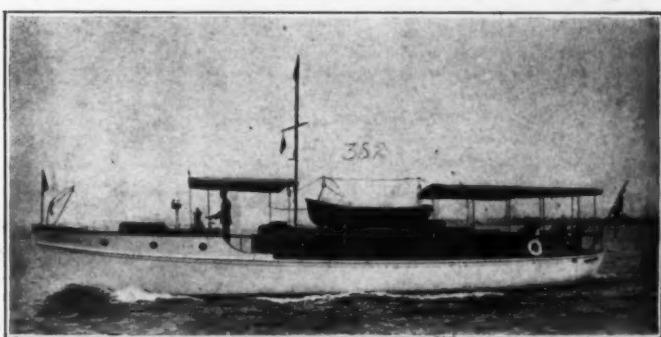
No. 262.—112 ft. overall. 150 h.p. Automatic.
Please mention MOTOR BOATING.



No. 360.—75 ft. overall. 1911. Murray & Tregurtha.
Please mention MOTOR BOATING.



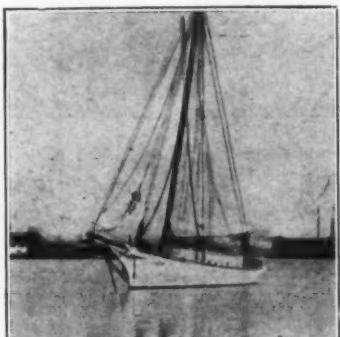
No. 365.—73 ft. Attractive boat at an attractive price.
Please mention MOTOR BOATING.



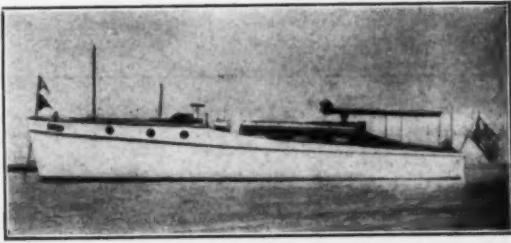
No. 352.—We have this and others similar from 50 to 60 ft. overall.
Please mention MOTOR BOATING.



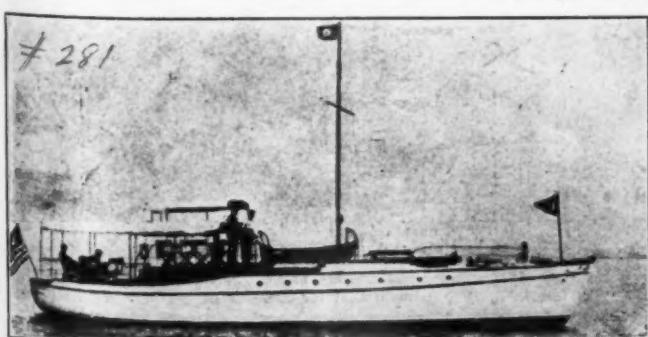
No. 343.—Hand design; V-bottom. Piute III model. 1912. 24 ft.
Please mention MOTOR BOATING.



No. 354.—Auxiliary Chesapeake skipjack.



No. 190.—40 ft. overall. A very large small boat. Full of room.
Please mention MOTOR BOATING.



No. 281.—60 ft. overall. Standard motor. Cheap.
Please mention MOTOR BOATING.



No. 260.—70 ft. overall. 1910. Standard motor.
Please mention MOTOR BOATING.

TOPPAN BOAT MFG. CO.

DESIGNERS AND BUILDERS OF
**Dories—Cruisers—Hydroplanes—V-Bottom
 Boats—Skiffs—Motors—Fittings**

21 Haverhill Street - - - BOSTON, MASS., U. S. A.
 Factory and Yards, MEDFORD, MASS.

LIST OF BARGAINS



No. 1.— 21×5 ft. Toppan V-bottom runabout, Major Casey design; roomy, comfortable; 10 H. P., a cylinder Toppan motor with reverse clutch; approximate speed, 14 miles. Special price, \$450.

Please mention MOTOR BOATING.



No. 2.—Toppan 19 ft. dory, 5 ft. beam; smooth planked, bright decks; side seats; 3 H. P. reversing motor. Regular \$325, now \$230.

Please mention MOTOR BOATING.



No. 3.—Toppan 22 x 6 ft. sea-going dory; 6 H. P. with reversing clutch; bright decks; decked seats with cushions. Demonstrating boat, regular price \$475, now \$350.

Please mention MOTOR BOATING.



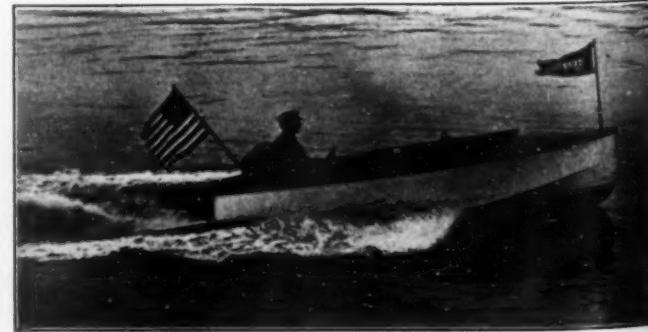
No. 4.—14 ft. "Sportsman," cedar planked, lapped; $2\frac{1}{2}$ H. P. motor. Worth \$150, now \$90.

Please mention MOTOR BOATING.



No. 5.—Raised deck cruiser, 30×8 ; 12-14 H. P., T. & M. motor, a cylinder, with reversing clutch; toilet, galley, good cabin room; 10 ft. cockpit; dory stern. Regular price \$1,500, now \$975.

Please mention MOTOR BOATING.



No. 6.—Famous Toppan hydroplane "Bullet," 14×4 ft.; 3 cylinder, 12 H. P. motor; approximate speed 18-20 miles. Mahogany finish. Special price \$350. Hull alone \$150. Can furnish K. D. frames for boat for \$30.

Please mention MOTOR BOATING.

JOHN G. ALDEN,

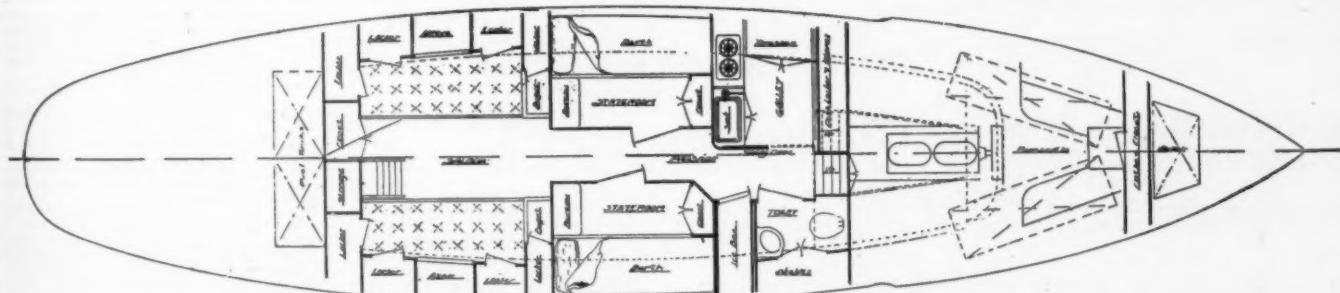
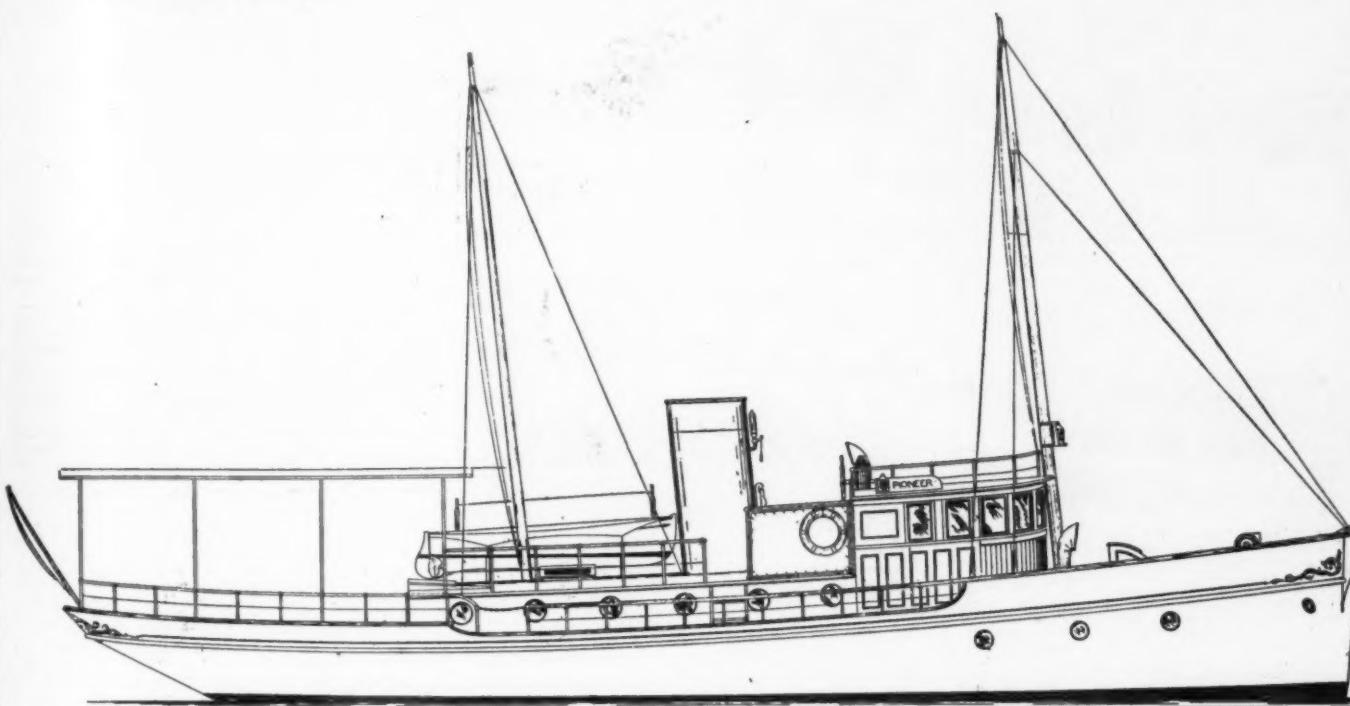
131 State Street
Room 521

YACHT BROKER AND NAVAL ARCHITECT
Marine Insurance

Marine Investments

BOSTON, MASS.

Telephone
Fort Hill 2483



A REAL SEA-GOING CRUISER COMPLETE FOR \$7500.

This boat, the description of which has already appeared in the January issue of MOTOR Boating, can be built under my supervision for approximately \$7,500, including a 30-40 horse power high grade engine, a $\frac{1}{2}$ k. w. 12-volt lighting plant with separate motor, 13 ft. tender, tanks, 3 tons ballast, awnings, etc., complete excepting upholstering, linen, dishes, etc. Write for further particulars.

Extreme Length, 48 ft. 6 in.

Beam, 11 ft. 6 in.

Draft, 4 ft. 4 in.



No. 41.—For Sale—Cruising launch 40 ft. O. A., 9 ft. beam and 3 ft. draft; large stateroom, main cabin, engine room amidships, sleeps six, built 1909, 20 h.p. heavy duty Relaco engine, complete equipment, low price.
Please mention MOTOR BOATING.



No. 922.—Cabin Launch, 30 ft. x 8 ft. 6 in. x 30 in. Perfect condition, built 1910, 25 H.P. 4 cylinder engine, 11 miles. Cabin, toilet, completely equipped, painted and varnished.
Please mention MOTOR BOATING.

THE MOTOR

The rate for "For Sale" and "Want" advertisements is 5 cents per word. If an illustration is used the charge is 15 cents, which includes the making of the cut:
 Cut one inch deep, one column wide..... \$1.00
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BOATING MARKET PLACE

Opportunities
for the
Motor Boatman

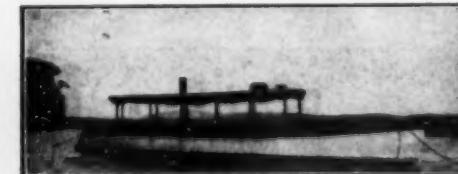
Before you buy or before you sell examine the exceptional buying and selling opportunities under this heading. They comprise the best offers of the month. Please mention Motor Boating.



\$8,000 46 ft. yacht \$3,950. Completely equipped. New and now building. Two toilet rooms, bath, hot and cold water. Great fuel capacity for prolonged deep sea cruising. Extremely well built. Draft suitable for Southern cruises. Four separate cabins. Sleeps seventeen if required. Cabin arrangement to suit you. Speed up to 14. Entire yacht finished in solid, beautifully paneled mahogany. One man automobile control. Electric lights. Power tender, wicker deck chairs, canopy, mast and stack. Cooking range, galley complete, tableware, etc. Beautifully upholstered and carpeted. Fireplace, clothes presses, etc., built-in. Comfortable, homelike. Strongly built on honor by Down East seasoned Yankee captain. Each detail of construction right. A practical yacht dependable in any weather. A 35 ft. x 8 ft. new cruiser \$245. Other bargains. Lowest prices for best work.
Modern Yacht Co., Bath, Maine.



FOR SALE.
Gasoline Cabin Cruiser, 35 ft. x 50 ft. x 12 ft. x 4 ft. Built, 1912. Launched Aug. 1st. Designed by Swasey, Raymond & Page. Oregon pine planking, 1 1/4 in. thick, oak ribs, 2 in. x 2 in. Galv. fastenings on burs. Round bow; compromise stern. Cabin finished in African Mahogany, 6 ft. 6 in. head room. Decks bright. Two toilets, one bath-room, complete, will sleep nine. Lighted by electricity and kerosene. Inventory includes glass, silver, dishes, linen, etc. One 10-ft. cedar tender, bright. One state-room finished in mahogany. Standard, single screw, 1912, 25-40 h.p. engine, 4 cycle, 4 cylinder, make and break engine, reverse gear carried to bridge. Engine completely equipped. Speed 12 miles per hour. Gasoline tanks hold 300 gals. Water tanks hold 150 gals. Tanks are copper, as aft underneath deck. As owner is unable to use, will sell at a bargain. Address, C. W. CLIFFORD, Jr., Bath, Maine.



FOR SALE—35 ft. x 6 ft. x 2 ft. launch; 4 years old; makes 15 miles per hour with a 4 cylinder, 4 cycle Trebert motor, bore and stroke 4 1/2 x 5, developing 23 H. P. at 600 R. P. M.; Joes Gear, Lobe pump and Splitdorf coils; cost \$1,000, sell for \$500 to close an estate. Hugh M. Van Orden, Catskill, Greene Co., N. Y. Bell Phone 366 F 5.

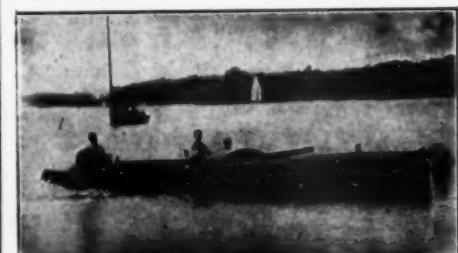
FOR SALE: Whistle outfit complete, tank, gauge, whistle and large foot pump. C. Grech, Baltimore, Md.

NEW HIGH GRADE STORAGE BATTERIES. Fully guaranteed. Sealed in hard rubber jars. Adapted especially for Motor Boat Lighting and Ignition Equipment. One size—6 volts, 140 amperes. Net cash price of \$17.50. Walter W. Hartman, Clay Center, Kansas.

FOR SALE—An 18 ft. launch; 3 H. P. Ferro engine; reversible propeller; in good order. Also a 3 1/2 H. P. Gray, Model S engine and complete outfit. Fine bargains. J. H. Carter & Son, South Jamesport, N. Y.



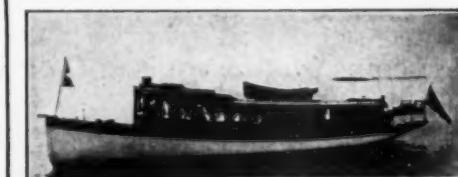
FOR SALE.—Raised deck cruiser, 25 x 7 ft., 3 cylinder, 18 H. P. Fairbanks-Morse engine; bulkhead controls; 3-gallon gasoline tanks; pressure whistle outfit; galley, running water, toilet, 4 berths; oak and cedar construction; copper fastened; first class condition; reasonable for cash. Dunbar W. Van Derveer, 652 Conover Ave., Long Branch City, N. J.



FOR SALE—Gielow mahogany runabout, carries ten, fast, about 25 miles; Jencick 6-70 motor; automobile dash steering and control; very quiet and staunch; highest grade boat built; boat and motor in splendid condition; will sell for one-third cost. Dr. Thos. L. Bennett, 307 West 91st St., New York City.



FOR SALE—Nearly new, 32 x 8.8 ft. raised deck cruiser, one man control, upper construction all mahogany; complete Fay & Bowen engines and outfit; for salt water. Electric lights, etc. Dr. J. A. Spangler, Geneva, N. Y.



"Beautiful Mahogany Finished Cruiser, 30' x 9'; draught 3 ft. 2 in. Equipped with a 40 h.p. 6 cylinder Lamb motor. Speed about 10 miles. Mahogany finished throughout, complete cruising accommodations. Will sail at a sacrifice and can be seen at Julius Petersen's Yard, Nyack, N. Y."

FOR SALE.
Boat and engine works, with full line of machinery and equipment in excellent condition; for manufacture of boats and gasoline engines; buildings in first-class order; size nearly one hundred feet square, two stories, possessing excellent water-front on St. Lawrence River in vicinity of Thousand Islands.

Also complete patterns for high grade two-cycle gasoline motors in sizes ranging from 2 to 120 horse power, from one to six cylinders.

A large business has been conducted at this establishment and the reasons for selling are of a private nature. This property will be offered at a great sacrifice.

Address all communications to Box 25, care of Motor Boating.

SPECIAL BARGAINS.
We have a number of brand new fully guaranteed 1912 models over and above our manufacturing schedule for this season. These will be disposed of at unusually attractive prices. Write at once for particulars as the supply is limited. We also have a few foreign makes accepted in trades. These motors have been carefully overhauled and are in first class running order.

3 cylinder, 4 x 4 1/2, 12-15 H. P. Barber \$150.00
4 cylinder, 3 1/2 x 5, 12-15 H. P. Sterling \$175.00

THE ROBERTS MOTOR CO.
1501 Columbus Ave., Sandusky, Ohio.

BARGAIN LIST OF LAUNCH FITTINGS AT LESS THAN MANUFACTURER'S COST.
In order to clean up on all launch and engine fittings and accessories not applicable to our 1913 models, we have issued an exceptional bargain list including propellers, coils, couplings, shafting, spark plugs, lamps, government equipment and many other fittings in standard sizes and all brand new.

If you are building a launch or need repairs for your boat send for this list today.

THE W. H. MULLINS CO., SALEM, OHIO.

BROKEN cylinders and crank cases welded. Worn cylinders reborod. Scored cylinders repaired, \$1.25. See our ad. Page 88. Waterbury Welding Company, Waterbury, Conn.

I SECURED the unsold 1912 product of prominent marine engine company. Can therefore sell the few remaining at prices that are right. Full factory guarantee. Four cylinder, 4 cycle, 60 H. P. medium duty. Single cylinder, 4 cycle, 6 H. P. medium duty. Also 1912 4 cylinder, 40 H. P. Trebert, 5 x 5 in. One 1912, 4 cylinder, 2 cycle, 24 H. P. Waterman. An exceptionally high grade 100 H. P., 4 cylinder, 4 cycle racing engine built by the best shop in the country; duplicates in famous racing boats. "Exceptional" care Motor Boating.

CYLINDERS REBOROD—Pistons and rings fitted, new crank, connecting rods, cases, transmissions, any part for automobile or motor boat motor reproduced like original. Gear cutting of all kinds and materials. Send old part. The shop of quality. McCadden Machine Works, Minneapolis, Minn.

AUTOMOBILES.

AUTOMOBILE, Marine, Motorcycle Cylinders reground, new pistons and rings fitted. Makes engine equal to new. Write for particulars. Cast Iron Bracing Co., Manchester, N. H.

FOR SALE CHEAP.

A 60 ft. cruiser, equipped with 40 H. P. Smalley high-speed engine, 4-cylinder, fast and strong; made of white cedar and copper fastened; will take care of 10 or 12 comfortably; six different rooms; main saloon 15 ft. long; toilet and wash room; engine room 10 x 11 ft.; staterooms and pilot house. Apply to W. W. Moody, Chedden, Va.

FOR SALE.

55 FT. ELDO EXPRESS, 1911, BUILT ENTIRELY OF MAHOGANY, COST LAST YEAR SOMETHING IN EXCESS OF \$4,100; GUARANTEED SPEED 24 MILES; IN PERFECT CONDITION. PRICE \$2,500 NET. ADDRESS LAWRENCE JONES, LOUISVILLE, KY.

NEW 34 H. P. six-cylinder Elbridge engine, just from factory. Aluminum manifolds, base and cylinder heads extra finish throughout. Built for Mr. Collier de Pont of Wilmington, Del.; exchanged for a larger power. Price \$700. Emerson Engine Co., Alexandria, Va.

WELDING.

Cracked Cylinders and all Broken Castings in any Metal SECURELY Welded and GUARANTEED at about one-half the cost of a new part. NATIONAL Welding & Mfg. Co., Incorporated, 527 Jackson Blvd., Chicago, Ill.

CANADIANS, Second-hand engine bargains. Send for list. Guarantee Motor Company, 73 Bay Street, North, Hamilton, Ont., Canada.

USE "SNAPPER" ENGINES for your small boat. They are big little engine built by The Automatic Machine Co., Bridgeport, Conn.

RAISED deck cruiser, 36 ft over all, 9 ft. beam; cedar planked, copper fastened, mahogany finished, 30 horse power, 4 cylinder Palmer motor, full inventory, a bargain at \$1,675. A 30 ft. raised deck cruiser, cedar planked, mahogany finished, 10 horse power Palmer, full inventory, a bargain at \$1,000. Palmer Bros., 31 E. 21st St., New York. Boats at factory Cox Cob, Conn.

USE OUR KEROSENE ATTACHMENT. Burn kerosene, more power, any gasoline engine can use it, cost only \$5; use both fuels; can be put on quickly; brings the cost of fuel back where it belongs; sent on receipt of price. G. D. Thorndike Mach. Co., Portland, Me.

AUTOINETTE AERO MOTOR for sale. Water cooled. A practically unused, fine condition. Regular price \$4,000; going for \$300. Also four Bosch magneto and a quantity of engine fittings. Address Box 100, care Motor Boating.

TO TRADE—25-mile hydroplane launch, 4-cylinder, high speed engine; new; cost one thousand. Want automobile, nineteen twelve or thirteen model. Lock Box 34, Le Claire, Iowa.

BOSTON MARINE AGENCY save you money and time if you want a yacht. Write Sabin Briggs, Mgr., 15 School St., Boston, Mass.

FOR SALE—One Roberts 40 H. P., 4 cylinder, 2 cycle motor; low price to immediate purchaser. W. D. King, Washingtonville, Ohio.

FOR SALE—Continental motor, 40 H. P.; mechanical oiler, pump, carburetor, new Sipplidorf double distributor magneto (cost \$150); complete outfit, \$200; without magneto, \$165. A. H. Dailey, 1619 Avenue "I," Galveston, Texas.

FOR SALE—25 ft. runabout Vulcan. Fully equipped. New last July. Speed 24 miles. 60 H. P. Mercury engine. Can be seen near New York. Address Motor Boat, P. O. Box 1513, N. Y. Chas. H. Ridder.

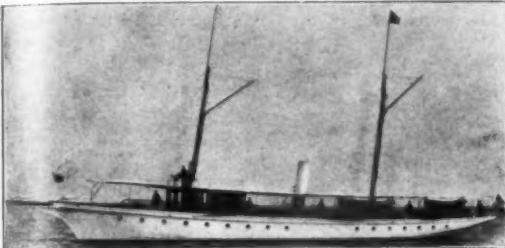
GENUINE BARGAIN—\$315. 4 cylinder, 20 H. P. Roberts' late model motor for \$225; standard equipment; thoroughly overhauled at their factory; guaranteed good as new. H. B. Porter, Bliss Place, Norwich, Conn.

THE MOTOR BOATING MARKET PLACE

Opportunities for the Motor Boatman

Before you buy or before you sell, examine the exceptional buying and selling opportunities under this heading. They comprise the best offers of the month. Please mention MoToR BoatinG.

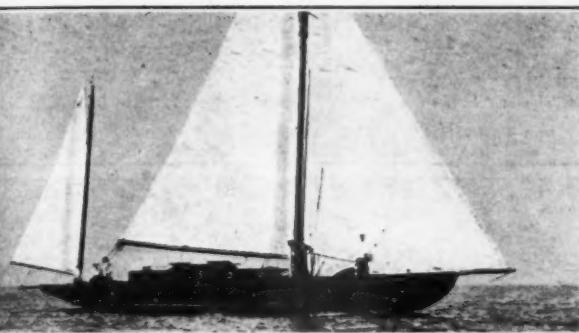
FOR SALE, TO CLOSE AN ESTATE.



STEAM YACHT "TRUANT."

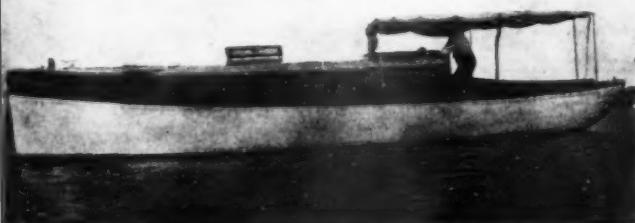
Built by Herreshoff, of steel (U. S. Navy specifications).

Length O. A., 138 feet; beam, 17 feet; draft, 6 feet. Speed on natural draft, 14 miles. This vessel is in perfect condition in every respect and fully equipped, having been built for the late owner, and always been in charge of the same captain and engineer. Four staterooms, two toilets, one bath, forward and aft cabins, commodious deckhouse. Original cost, \$60,000. For further particulars address TRUMAN H. NEWBERRY, 1224 Ford Building, Detroit, Mich.

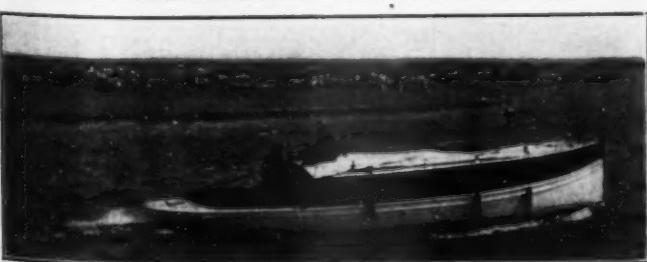


No. 3073.—Pole mast, C. B.—Auxiliary Yawl, 63 ft. 6 in. x 45 ft. x 15 ft. 6 in. x 4 ft. 4 in. Launched 1909, our design. Large and comfortable accommodations. One double and one single stateroom. Saloon 9 ft. long. Good toilet accommodations. 24 H. P. "Lamb" engine installed 1908. One of the finest and fastest yaws on the coast. Everything in A-1 condition. Complete cruising equipment. Attractive price. Gielow & Orr, 52 Broadway, New York.

4074.



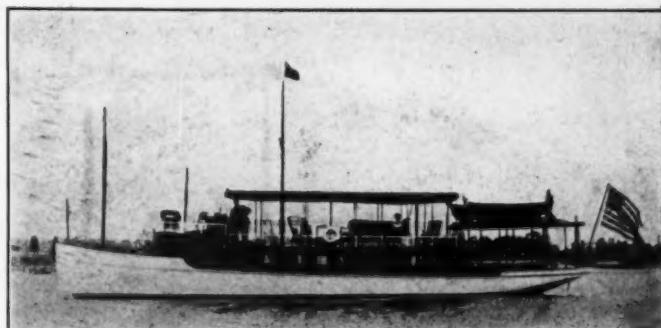
No. 4074.—Raised deck cruiser.—36 ft. x 8 ft. 6 ins. x 2 ft. 9 ins.; built at Morris Heights, equipped with 4 cyl. 18-22 h.p. Speedway motor. Cabin 12 ft. long. Toilet and wash basin in separate compartment. Self-bailing cockpit. Oak finished. Well found. Fine sea boat. Speed 10 miles. Has had little use. Reasonable. Gielow & Orr, 52 Broadway, New York.



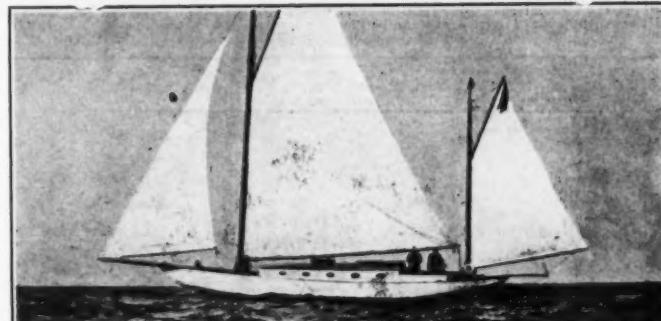
For Sale.—Cabin cruiser, 40x9x3 ft. 4 ins. Very strongly built and seaworthy. 21 h.p. engine Ferro; Magneto, Toilet, emergency spar and sails. Very cheap, for quick sale. For further information apply to Narcisse Lapierre, Matane, P. Q.

NO REASONABLE OFFER WILL BE REFUSED for H. P. Lozier engine. This boat would stand most any amount of power. She is considered by me the best hull on Lake Champlain. Would exchange for good automobile. Also a 27 ft. speed hull, not quite finished. Reason for selling, I expect to move where there will be no boating. F. H. LaVoie, Plattsburgh, N. Y.

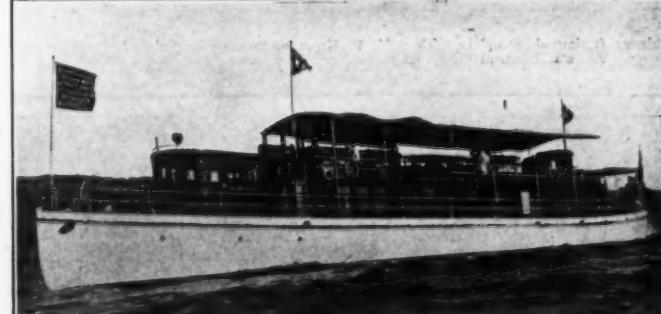
For Sale—23 ft. Iau. Sh; 20 H. P. motor; 20 miles. Price right. A. G. Stilman, Westerly, R. I.



FOR sale at bargain price an unusual desirable available boat for Southern or Northern waters. 63 x 14.6 x 3.8 ft. Built under direction for William Palmer, former owner, Palmer Fleet, a man of large experience in boat building. Built of two-inch oak planking throughout. Finished best mahogany. Every compartment in best condition and fully equipped. Bridge control; in fact everything for comfort. Unobstructed upper deck, 35 x 14, enclosed with deck curtains for rainy weather. Accessible by companionway, fore and aft. Large cockpit, seats for 4 built in. Large staterooms, over 10 ft. headroom. 6 large bunks, double mattresses, one hair, one silk floss. Dining table for 6, 8 large lower, chifforobe, curtains, ample draw space, new toilet. Engine, Murray & Tregurtha, go. H. P.; speed 11 honest knots. New copper gasoline tank, 800 gallons; a water tanks, 350 gal. each. Large ice chest. Galley complete. Positively cannot be equalled for comfort for a boat this size. For full details, apply Box 77, Rock Bay Post Office, Boston, Mass.



No. 2248.—Sale.—Low price. C. B. Auxiliary Yawl, designed and built by Read Bros. 1906—Murray & Tregurtha engine. 47 ft. 6 in. x 11 ft. 10 in. x 12 ft. 6 in. x 5. Double stateroom, large saloon, toilet and galley. Cockpit 10 ft. long. Extra good sea boat and fine sail carrier. Fine condition throughout. Fully found. A really good boat. Gielow & Orr, 52 Broadway, New York.



No. 31.—Offer Wanted—96x16.6x4.2 ft. twin screw gasoline yacht. Speed 12 miles, 50 h.p. Murray & Tregurtha motors. Mahogany finish throughout. Exceptional opportunity, as owners are very anxious to sell. For further particulars apply to Cox & Stevens, 15 William Street, New York City. Telephone Broad 1375.



For Sale.—Famous speed boat "COYOTE," six cylinder, 60 h.p. Pierce-Budd motor, speed 31-4-10 miles. \$850. Address Jas. A. Greaves, Jersey City, N. J., or Omar C. Mewhinney, Terre Haute, Ind.

FOR SALE, cheap, or will trade for automobile—A semi-speed launch, 22 ft. long, 56 in. beam, 14 H. P. Model T, 2-cylinder Gray engine, under hood; clutch; magneto, rear starter, auto control, auto top and curtains; leatherette cushions and lights; seats 8 people; speed 15 miles guaranteed; will store until March 1st. Address C. B. Hoar, Quincy, Ill.

FOR SALE—30 ft. raised deck cruiser, fully equipped: 12 H. P. Mianus, 1910; 10 ft. dink. \$800 cash. A. F. Johnson, 798 Washington Ave., Brooklyn, N. Y.

RUNABOUT—34 x 6; 4 cylinder Brown, 24 H. P.; fully equipped; 34 miles; 20 people; used two months. Runabout, 32 x 5½; three cylinder Barber, 21 H. P.; 16 miles; carries ten perfect condition. Further particulars write A. Wells, Skaneateles, N. Y.

GASOLINE CRUISER FOR SALE—42 ft. O. A., 10 ft. beam, 32 in. draft; pilot house, saloon, toilet, galley and engine room; 15 H. P. 20th Century engine; all good condition. Full inventory. Can be seen hauled out. E. Heuel, 144 West 79th St., New York City.

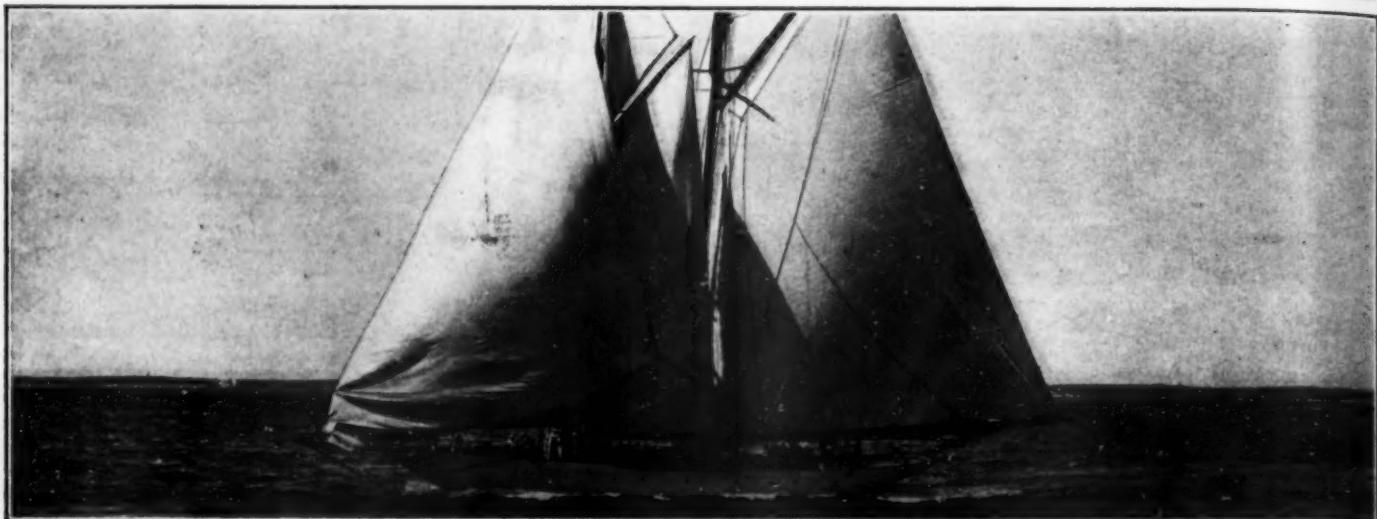
THE MOTOR BOATING MARKET PLACE

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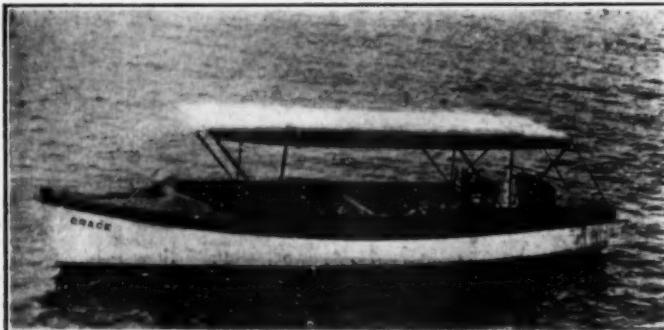
Cut one inch deep, one column wide.....	\$1
Cut 1/2 inches deep, 1/2 column wide.....	\$2
Cut three inches deep, three columns wide.....	\$10

Opportunities for the Motor Boatman

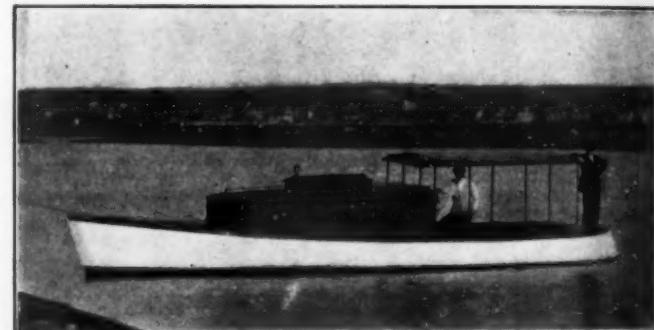
Before you buy or before you sell, examine the exceptional buying and selling opportunities under this heading. They comprise the best offers of the month. Please mention Motor Boating.



For Sale.—Steel auxiliary schooner yacht, 118 feet, 79 feet waterline, 22 feet 2 inches beam, 12 feet 6 inches draft. Perfect condition. New Ratsey complete set sails, and other set. Palatial cabin; bureaus, lockers, stove; two double staterooms; two guest rooms; two bathtubs; finest plumbing. 100 H. P. six cylinder Standard motor, practically new, drives 10 miles an hour. Acetylene plant. Hot water heating, keeps interior warm on coldest days. Large captain's stateroom; fine quarters for officers and crew. Large galley, big range, pantry, refrigerator, mess room. Carries motor launch, 7 H. P. cutter, dinghy. Hollis Burgess Yacht Agency, 15 Exchange St., Boston, Mass.



This 22 ft. launch complete with 9 H. P. Knox motor, newly painted, for sale very cheap if taken at once. E. H. Switzer, 80 Summer St., Boston, Mass.



For Sale.—Torpedo stern hunting cabin semi-cruising launch. Hull 35 x 6 1/2 ft. Cabin 13 x 6 ft. Toilet and mahogany lavatory. Large mahogany skylight. Electric lights. Lockers. 27 h.p. Lackwanna engine, four cylinder, Hydrex silencer. Paragon reverse gear. Apple dynamo, storage battery, voltmeter, brass running lights, life preservers, flagpoles, icebox, etc., etc.

A good sea boat, speed about 10 to 12 miles, only four years old, and in perfect condition. \$800. A bargain. Apply to S. D. Shipley, 147 Grove Street, Stamford, Conn.



For Sale.—Famous raised deck cruiser Consort, 25x7 1/2 ft. with 10 h.p. two cycle motor. Speed 8 miles per hour. Inspectable. New York City Address, Box 99, care Motor Boating.

FOR ABSOLUTELY WATERPROOF CANVAS boat covers use Paragon Compound No. 2. A concentrated compound. Dissolve in hot water and apply with a brush. When dried become waterproof. Common drilling treated with this compound is absolutely waterproof after three seasons' exposure. Regular size package making one gallon of fluid sent prepaid for..... \$1.00

PARAGON MFG. CO.
Box 488, Rochester, N. Y.

BARGAIN.

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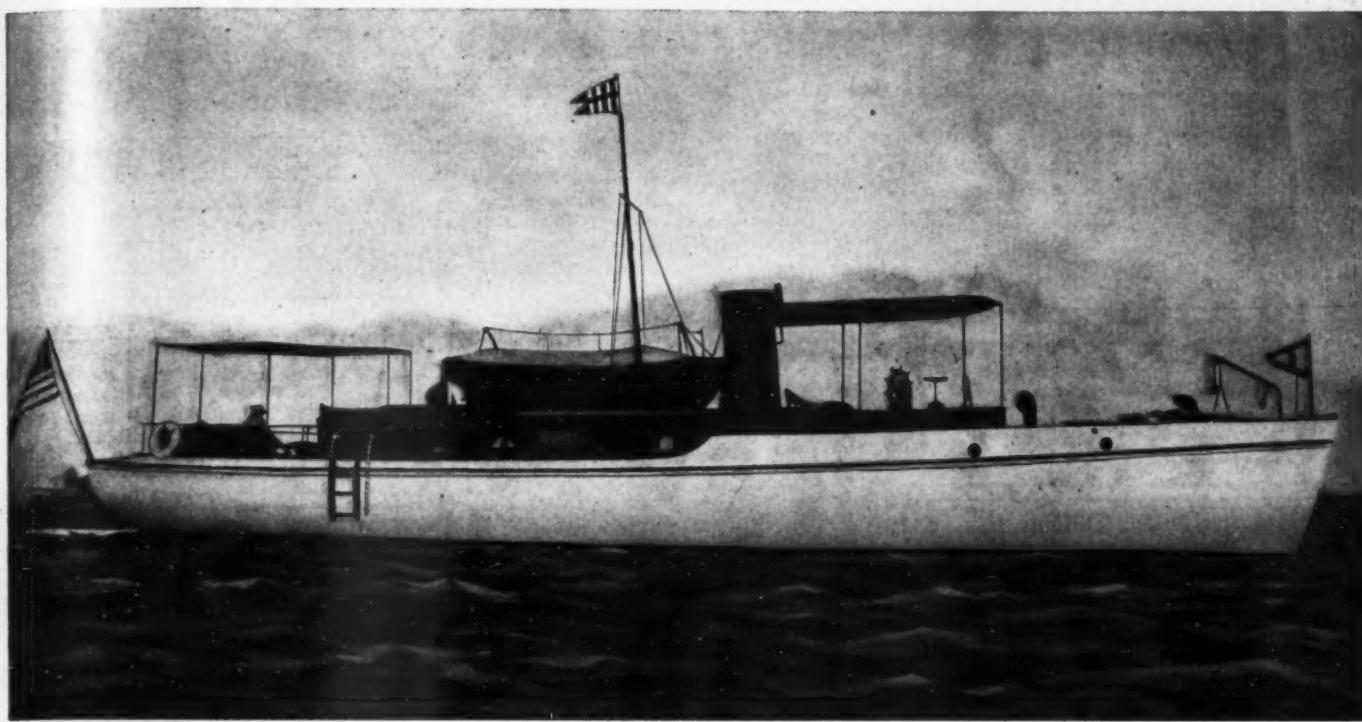
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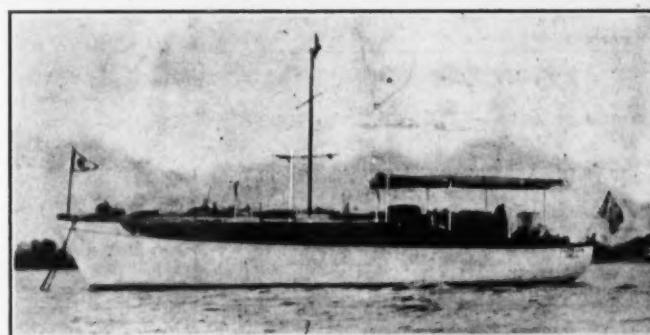


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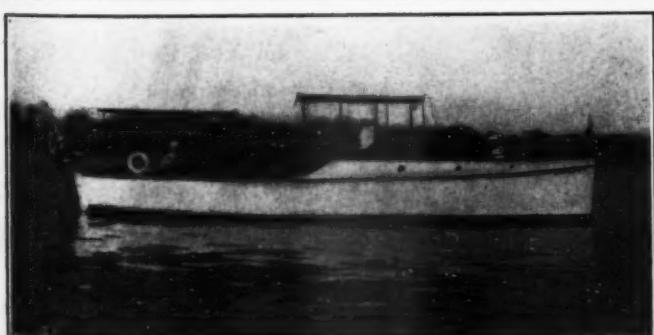
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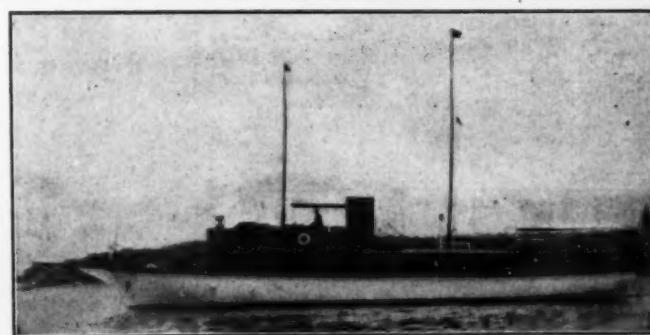
"Chippewa," length, 40 ft.; beam, 10 ft.; draft, 3 ft. Arrangement below consists of stateroom, main cabin, toilet room, galley and engine room. The motor is a 14 H. P., 4 cylinder, 4 cycle Clifton. J. Murray Watts, 328 Chestnut St., Philadelphia, Pa.



"Gretchen," length, 38 ft.; beam, 9 ft.; draft, 3 ft. 3 in. Arrangement below consists of main cabin, toilet room, engine room and galley. The motor is a 30-35 H. P. 20th Century. J. Murray Watts, 328 Chestnut St., Philadelphia, Pa.



"Waonda," length, 38 ft.; beam, 8 ft. 6 in.; draft, 3 ft.; arrangement below consists of stateroom, main cabin, engine room, galley and toilet room. The motor is a 25-30 H. P., 4 cylinder, 4 cycle Loew Victor. J. Murray Watts, 328 Chestnut St., Philadelphia, Pa.



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What the Shows Told.

(Continued from page 4)
type for yacht tender work this model could hardly be surpassed.

As to the means of ignition the jump spark systems appeared in greater numbers than ever before especially on the small single cylinder models on which the make and break had heretofore been so popular. This does not indicate, by any means, that the latter system has been discarded to any appreciable extent, but simply that manufacturers are recognizing the wide range of possibilities of each and in many instances are turning out similar models with each type of ignition system. One reason for the advance in the jump spark system is the perfection of unit spark coils and the self-sparkers not to mention the developments in the high tension magnetos. Jump spark equipments intended for open boat use also showed considerable improvement in their waterproof qualities and protection from the weather.

The designed revolutions per minute of many of the new models of motors showed a remarkable jump upwards. One thousand to twelve hundred revolutions per minute were not rare even in many of the small powered single and two cylinder motors. One striking example of this was shown in the new two cylinder, two cycle, three port 3" x 3" motor just put out by the Carlyle Johnson Machine Company, of Manchester, Conn., which developed 5 h.p. at 1200 r.p.m., weighing only 100 pounds complete with magneto and reverse gear.

Back firing prevention devices were shown on a majority of the two cycle motors especially those of the three port design. These, in general, consisted of one or more screens in the by pass to prevent the flame from entering the base of the engine. One of the improvements noticed this year for the first time in many of the motors was a provision for removing these screens, should it be necessary to clean them.

High powered racing motors were present in goodly numbers showing that this field has considerable commercial value with constantly increasing possibilities. Sterling, Van Blerck, Elco, Speedway, Mercury, R-V, and several other motors were notable examples in this line.

Detachable motors for small boats and canoes have evidently come to stay, judging from the interest shown in the Evinrude and Wisconsin exhibits. These types of motors have been improved wonderfully and are now as practical as the regulation type of marine motors.

Down the East Coast.

(Continued from page 10)
erating seems to become tiresome in time, so we were delighted to be again skimming the surface of the vasty deep, as it were, the Indian River in places being as much as fifteen feet from top to bottom. On the Indian River we made the interesting discovery that speed boats are here used for business purposes, the orange growers using them for visiting their more distant groves along the River. One grower showed us his twenty-mile speedster and told us he had a grove fifty miles down the River which he could get to in his boat in two hours and a half, while it would take him from four to five hours to struggle there through the sandy roads in his car. Power lighters and scows are used, too, for transporting the fruit and produce on Merritt's Island across to the mainland.

(Continued on page 86)

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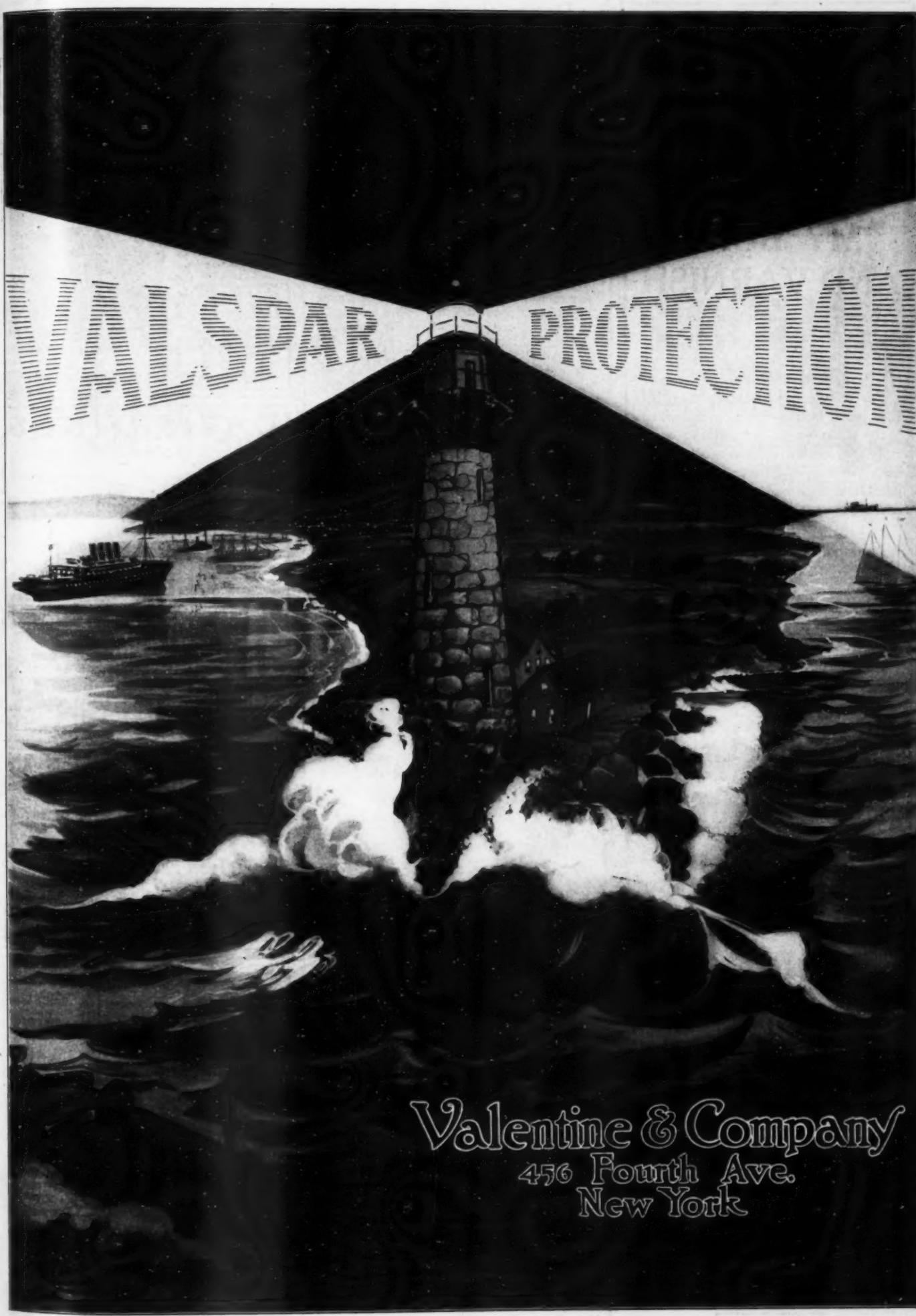
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Down the East Coast.

(Continued from page 84)

The Indian River is bounded on the south by St. Lucie Inlet and Gilbert's Bar. It is an effective barrier. The only way to get across it is to resort to the process of elimination. After trying several likely looking places we succeeded in getting across the head of the Inlet and into Deep Pocket, at the south end of which a canal now leads into Peck Lake, saving one the running of the difficult shallows farther down the Inlet and in Upper Jupiter Narrows. St. Lucie Inletites are rejoicing over a substantial appropriation for opening up this Inlet and probably before many moons the way through this place will be far simpler.

Palm Beach and white flannels came next on our schedule, after a delightful run through beautiful Lake Worth Creek. We lingered only long enough to take on gasoline and determine the latest style in ladies' hats before moving on to a spot where we could resume our khaki trousers and return to our unshirted state. We are gradually getting used to this summer wardrobe in mid-winter, though after so intimate an association with sweaters and flannel shirts it was a bit hard at first.

The southern end of Lake Worth contains much mud and very little water. In this respect it resembles other inland water ways of Florida which we have been over and through. But we fought a winning battle and gained the entrance to the Lake Worth Canal where we saw our first "gater and observed a number of "Crackers" who, in turn, observed us with all their eyes. These are the most active part of the Florida cracker we have been given to understand. The way to tell one is as follows: If you see a man and a tree stump together on the bank observe both closely for an hour or more. If during that time the stump moves you may know that the man is a "Cracker."

In one particular, however, the "Cracker" is exceedingly agile and adept. It is in exacting coin of the realm from the northern visitor. We supplied an excellent example at Fort Lauderdale. Here we were unfortunate enough to break a clutch gear. For some time there had proceeded from the vicinity of the gear box at intermittent intervals an ominous grinding roar, somewhat on the order of the sound coming from the lion cage at feeding time. We hoped, however, that with frequent oil baths we could work in to Miami. True, we used the clutch more than any other article on board except the pole, but still we had hopes. They were unwarranted, and we were obliged to proceed to Fort Lauderdale, distant two and a half miles from the scene of the catastrophe at the end of a tow line. We hardly took in the beauties of New River on which this frontier town is situated, for we could feel the dollars departing from us at every tug upon that hawser. However, we got a good job once there, and then made a mighty resolve. We would suffer no longer! We would give the clutch, the pole and our shoulders a well-earned rest. We would not further endanger the pump by feeding it mud instead of water and torture the engine by choking its veins and arteries with the accursed mud. We would run outside to Miami!

It is only about twenty-five miles from New River Inlet to the jetties at the government cut in to Miami and what a pleasant twenty-five miles we found it! Incidentally we saved a canal toll, the canal between New River and Biscayne Bay being the only one along the East Coast where a toll is exacted. We kept about a mile off the beach enjoying the novelty of surveying the bottom some thirty feet below us, and finally pausing for a good old-fashioned swim. The temperature of the water was 79° and that of the air about 74°. Shortly after noon we entered the Bay and came to roost off the beautiful club house of the Biscayne Bay Yacht Club in company with a large fleet of yachts, many of whom we had seen on our way down.

(Continued on page 88)

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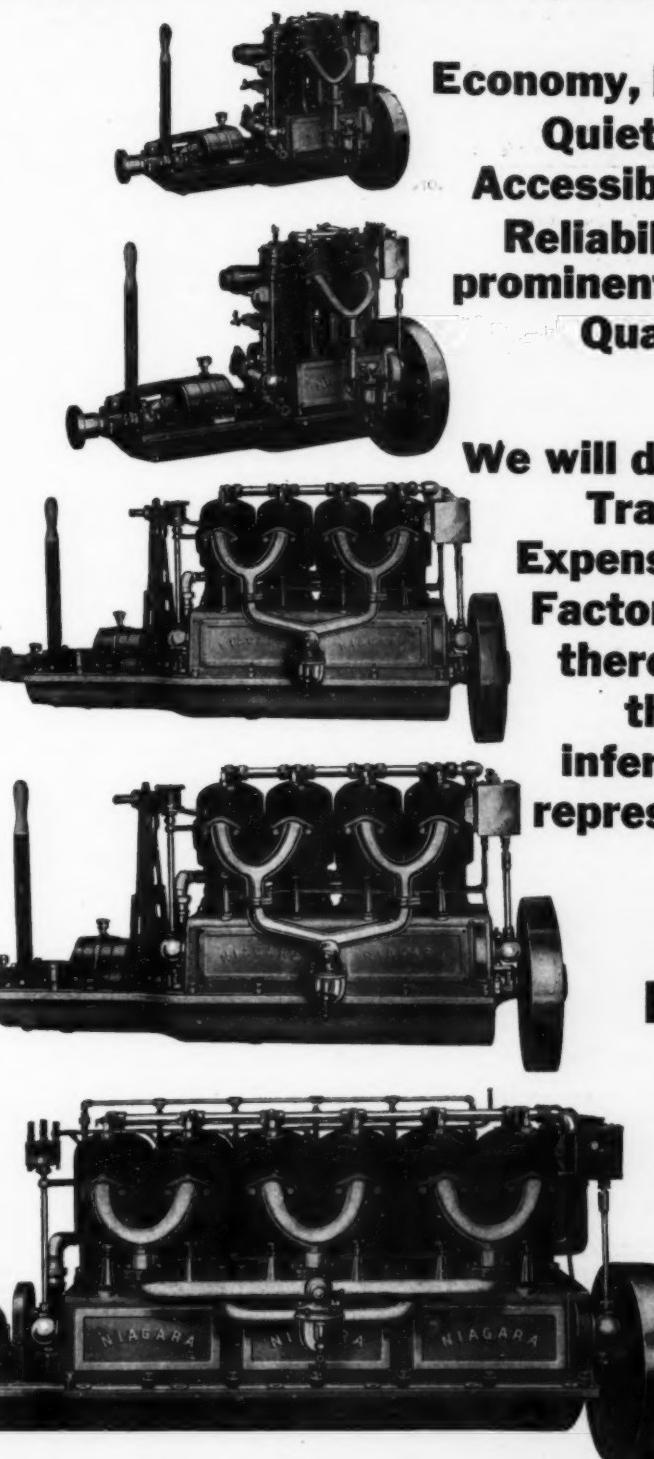
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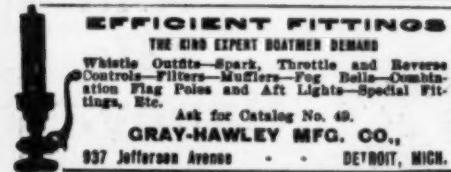
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Made of an alloy metal that's strong as steel and positively non-corrode in salt or fresh water. Endorsed by U. S. and used on her battleships and torpedo boat destroyers. The surest way to secure the maximum speed from any boat is to fit it with a genuine Monel Metal Propeller. Identify the original by the circular trade mark. Send for booklet.

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Everything for MOTOR BOATS and YACHTS at lowest

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DUPREE'S 119 Chambers St., New York



When writing to advertisers please mention MOTOR BOATING, the National Magazine of Motor Boating.

Down the East Coast.*(Continued from page 86)*

Here, too, we found the comfortable passenger power boats of the Biscayne Navigation Company and the sight of them with the name of our home town upon their sterns was good to look upon.

Were it not for our premeditated plunge into the unknown, with its exciting anticipations, we would surely be reluctant to pull up the hook again before spring. But the lure of the Everglades is constantly growing stronger, and our pioneer voyage across them and into Lake Okeechobee promises much novelty and adventure. So, as soon as our weedless wheel arrives we plan to sharpen our sheath knives and clean our automatics; then, after a farewell moving picture show we shall chug back to Fort Lauderdale, the Gateway to the Everglades and bid a temporary adieu to civilization.

60 Miles an Hour.*(Continued from page 5)*

Yes, sixty miles will be made in 1913 and more than likely, a shade better. This, however, would be most foolish to do except in mile trials of some consequence as it would be unwise to abuse engines capable of driving a boat at that speed unless forced to in competition, as it has always been my motto when driving in races to run only as fast as needed to win. At the boat show last year I put up a sign guaranteeing forty miles per hour and I was the laughing stock of the whole show, but I was then reserving a lot of speed up my sleeve, and when I realized the critics were sincere, I took down the forty mile sign and put up a fifty-mile-an-hour guarantee and the remarks then were: if the show lasted another week I would be going one hundred miles per hour. It is a matter of official record that I did 53.7 on our fifty mile guarantee. So, I say sixty miles in 1913—and we have not fallen down as yet.

John J. Ryan.

(Of Smith-Ryan Boat Company, Designers and Builders of the Reliance.)

British Boats for Monaco.*(Continued from page 14)*

time, giving it a sort of lacing effect.

The deck beams and deck are next fitted, the deck being double planked and sewed the same as the skin. In all this work the writer was impressed with the skill and speed of the workmen.

Saunders has indeed earned a reputation in this work. Beside the above eight boats, he had underway a 24-footer to the same lines, a 68 foot motor yacht, several runabouts and some ten or twelve boats for the British Admiralty. Saunders "sewed" boats have stood up so well under the service of the British Navy that the Admiralty have specified sewing for all their smaller boats and have recently given him an order for eighty boats.

This "sewing," it will be remembered, was used in Maple Leaf IV, which was a Saunders boat. It is by no means limited to small craft for they have recently launched an 80' double deck passenger boat built in this manner. The strength of the eight boats mentioned was remarkable, the writer examined them particularly in this respect. The two layers of planking were so well fastened together that it made practically one thickness of 7/32".

Quick Acting Lever Vise.

Fisher & Norris, of Trenton, N. J., have recently placed on the market an improved quick acting lever vise. The advantages claimed for the vise are its quick action combined with powerful holding qualities. The operation of the vise is as follows: When the lever is thrown all the way back, the sliding jaw can be moved in or out at will, so that after inserting work between the jaws, the movable jaw is closed against the work by a slight pressure of the thumb against the stop pin in the end of the "sword," while the lever is brought forward which puts such a grip on the work, that it cannot be released until the lever is thrown back.

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on your marine engine is the result of using Ideal Ignition Specialties. Ideal Spark Plugs, Porcelain, \$1.00; Zinc, \$1.25; Ideal Side Acting Switch, \$2.50; Ideal Front Connected Switch, \$2.75. Write today for complete catalog.

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THE Aaron is the only automatic Bilge Pump on the market that really works automatically, also the only device that will positively rid your pump of the gasoline fumes and thus preventing explosions.

Aaron Automatic Bilge Pump Co., Inc.,
Howard Bldg., Providence, R. I., U. S. A.**Speed Bug.**

"Last summer I spent all my spare time around the docks learning what I could about boats. Finally I bought a little sixteen footer, one of those cranky little devils, but got there just the same, and I had the pleasure of cleaning up everything on our lake, in fact, I got them good and plenty until one day my chum, whom I had beaten in many a race to a frazzle, came up along side of me and with a very serious face bet me a tenner he had me as he explained. 'My engine always was wrong, and now I have got it fixed.'

"It looked like easy money, so I took him up. Would you believe it, I lost. What do you know about that? He certainly got me and my ten bucks easily."

"Well, I soon found out how he trimmed me; it was not his engine at all. I will tell you the secret. He had gone to work on the sly and put on one of those Michigan racing wheels."

"To make a long story short, I sent to the Michigan Wheel Company of Grand Rapids, Michigan, and got one, too, and what I didn't do to all comers was a caution. That Michigan Wheel most certainly did increase the speed." —Ady

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TRADE MARK
FIRE
EXTINGUISHERS



SIZE 9 IN.
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14 IN. LONG
WEIGHT
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Danger out of
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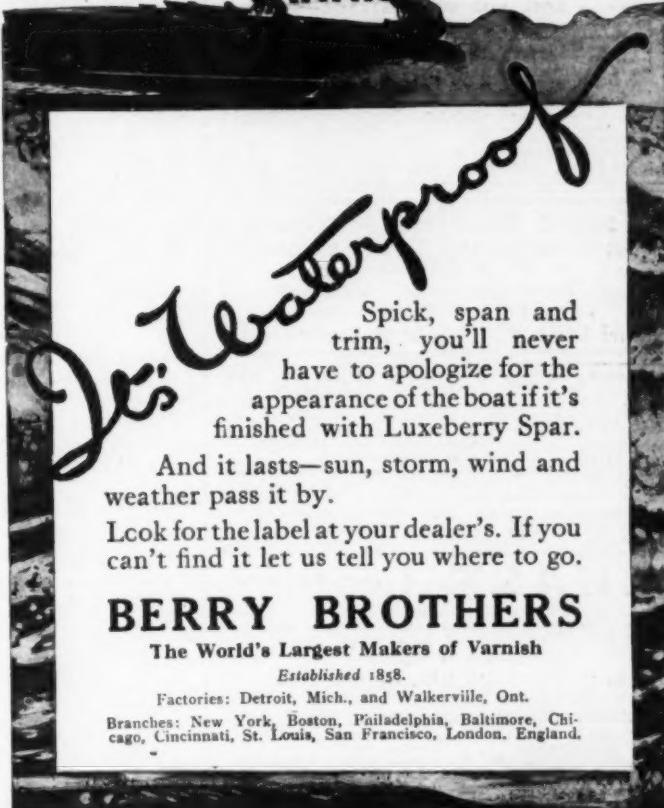
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Our 1913 Catalogue (sent on request) tells all about it

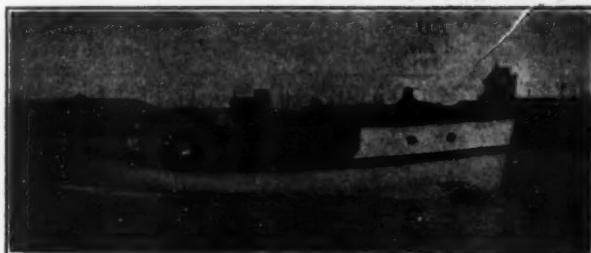
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REMEMBER** we can supply you with supplies
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**Pacific Section of A. P. B. B.**

At a meeting held recently, the local section of the A. P. B. B., organized in November last, elected its officers for 1913 and adopted a constitution and by-laws.

The following are the officers elected: Chairman, I. H. Cory, San Francisco Yacht Club; Vice-Chairman, Frank Mitchell, Sacramento Boat Club; Secretary, Frank E. Baker, Corinthian Yacht Club; Treasurer, H. L. Burleson, Pacific Motor Boat Club; Delegates At Large, Emil Staaf, Corinthian Yacht Club; Frank McGorden, San Francisco Yacht Club.

The Section has been granted a charter by the National Body, which has a string of sections covering the United States from coast to coast, and a membership of over 50,000. The local section has a membership of over 600.

The object of the organization is to promote the general welfare of power boats in the State of California. Subject to the decision of the Council of the American Power Boat Association the Section will control all racing speed contests and competition within its jurisdiction.

Any permanently organized club in the State of California of more than twenty-five members, devoting its attention to power boats, or to the sport of racing motor boats, is eligible to membership. Each club is entitled to one representative on the governing board for one hundred members or fraction thereof, but no club is entitled to more than three representatives.

During the Panama-Pacific Exposition in 1915, the California section will hold a regatta that will probably eclipse everything in motor boat racing that has ever taken place up to date.

Racine Boat Stories.

The Racine-Truscott-Shell Lake Boat Co. sends us a copy of its catalogue No. 40, entitled "Boat Stories." As the name intimates, the booklet tells the story of a select company of this concern's well-known line of motor boats, ranging from a little 12-foot yacht tender to the big shallow-draft and off-shore cruisers, that open the fascinating world of inland waterways to the lucky owner. The catalogue is printed in sepia on a pale blue paper and presents a most attractive appearance. Needless to say, the booklet is copiously illustrated.

National Association Meeting.

On February 20th, the National Association of Engine and Boat Manufacturers held its annual meeting. John J. Amory, president of the organization, presided. The following executive committee was elected for a three-year term: John J. Amory, George F. Lawley, William E. Scripps, S. J. Matthews and A. W. Toppan. During the meeting the subject of holding a western exhibition next year was brought up. Chicago is the city favored for such a show and while no definite action was taken, the sense of the meeting seemed to favor such a course. Members present readily agreed to take 16,000 sq. ft. of space in a Chicago motor boat show. The question will later be submitted to the entire membership of the association, the result of this vote determining the action to be taken. New members of the association were elected as follows: The Winton Gas Engine Co., Milwaukee Yacht & Engine Co., W. H. Fauber, The Debevoise Co., The Warren Sales Co., of Chicago, The Smith-Meeker Engineering Co. and the Stromberg Carburetor Co., of Detroit.

Mahogany Express Launch.

One of the most beautiful exhibits at the New York Motor Boat Show was a 54-foot launch of solid mahogany, built by the Gas Engine & Power Co. and C. L. Seabury & Co., Consolidated, of Morris Heights, N. Y. This boat was purchased by Henry Coleman for use on Lake Saranac. The motor power of this handsome craft consists of a six-cylinder 200 horsepower Speedway motor of latest design, with a bore and stroke of 8 x 8 inches.

**"The Reverse Gear That
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Gives you perfect control of your motor boat. Over 15,000 in use; every one backed by our iron-clad guarantee. Our low prices the result of large output and pioneer experience. Write for details.

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For Gasoline, Air for Whistles, Oil, Water, Muffers, Condensers, etc. Heavy sheet iron and plate steel work of any shape desired. Galvanizing of all kinds of boat work.

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are particularly adapted for motor boat work throughout the power plant. Made in three types. Double Row, combined radial and thrust. Single Row, for radial loads only. Radax, for radial and one direction thrust loads.

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NO GEARS.
ONLY ROLLER BEARINGS and CONES. GRIP INSTANTLY and FIRMLY. BEST REVERSE CLUTCH ON EARTH.

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Will generate current for ignition, starting, etc., from a single dry cell or a pair of batteries, etc. Suitable for all types and sizes of gas and gasoline engines. LET US TELL YOU HOW TO MAKE YOUR OWN ELECTRICITY.
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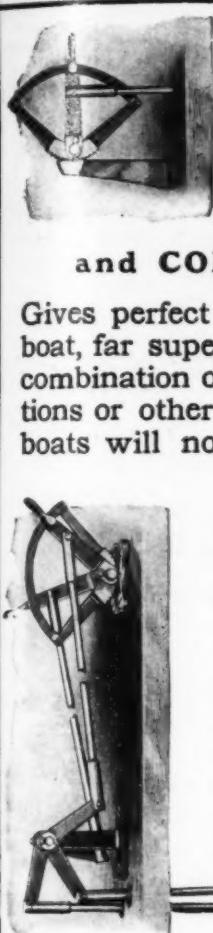
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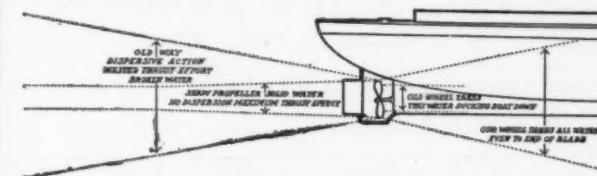
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Weatherproof
Well Designed
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This is the ideal solution for the question of how to house your boat. It has more exclusive advantages in its favor than any other method. You cannot find a better way.

The Springfield Boat House is built in any size you require. We have been constructing portable buildings of all kinds for years, so that we have this business down to a science. For quality of architecture, materials and workmanship no architect, builder or contractor could equal us at our prices. Specializing and quantity production have achieved wonderful results in our plant.

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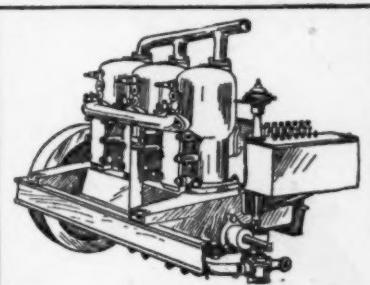
3 Cy'der, Valve-
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Regular Price of these
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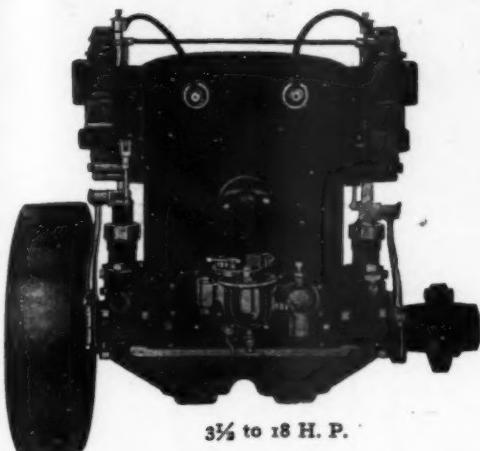
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Engines lubricate with oil in the gasoline or with force feed mechanical oiler.

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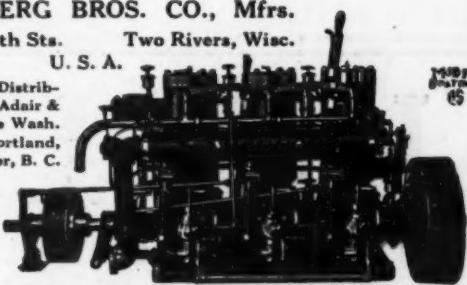
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We
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To Increase the Speed of Your Boat

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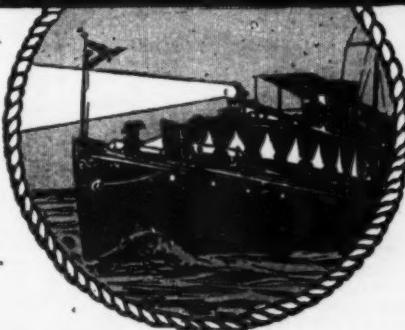
B. & B. propellers give you the highest degree of speed and power your boat and engine are capable of. Their efficiency is as near perfection as it is possible to attain. They reduce the percentage of slip and produce the maximum propelling force for the horsepower used.

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Have
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Light This
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Make up your mind now to have electric light in your boat this season. Don't put up any longer with smelly, dangerous kerosene lamps. A cabin flooded with light, a strong searchlight, bow, port and side, riding and tail lamps—all at your command by a turn of the switch, whether your engine is running or not. Adds 100 per cent. to the enjoyment of your boat; eliminates the danger and trouble. Our outfit also insures an unfailing source of ignition current. Write for complete description of our outfits to-day.

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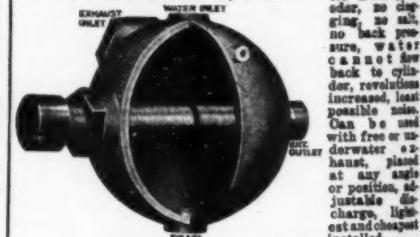
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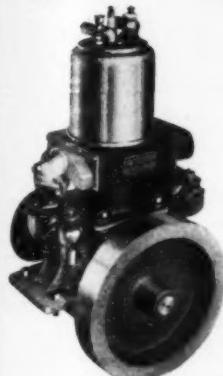
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"The Masterbuilt Engines"

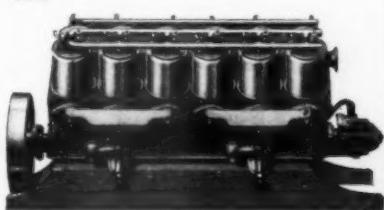


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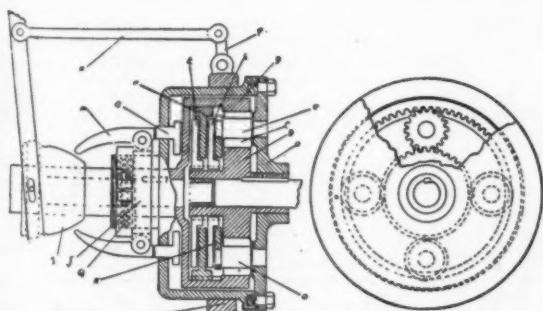
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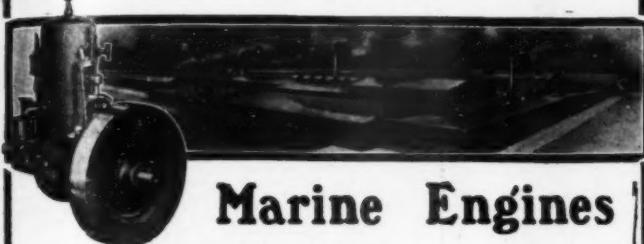
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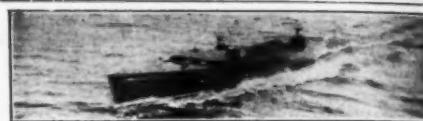
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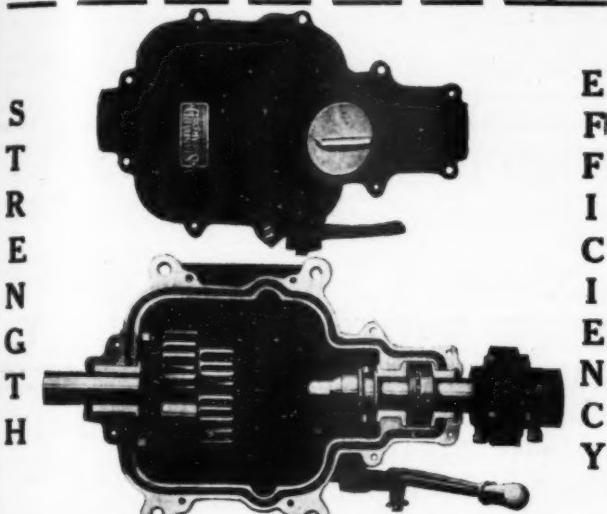
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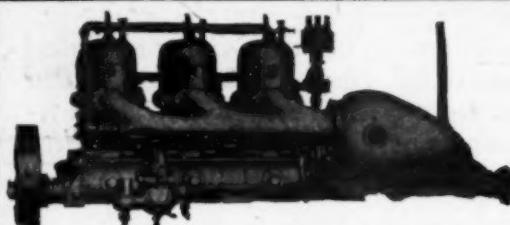
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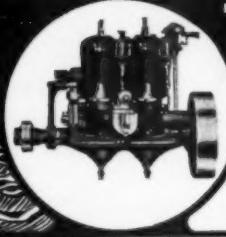
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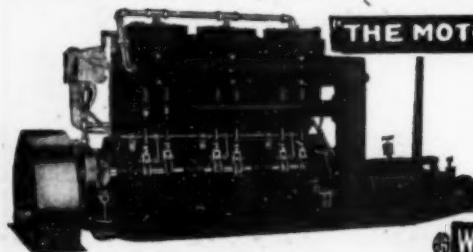
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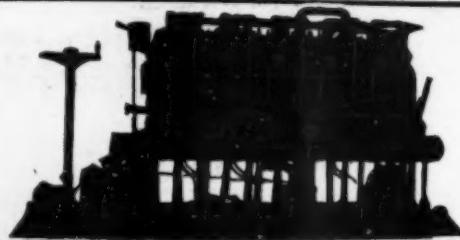


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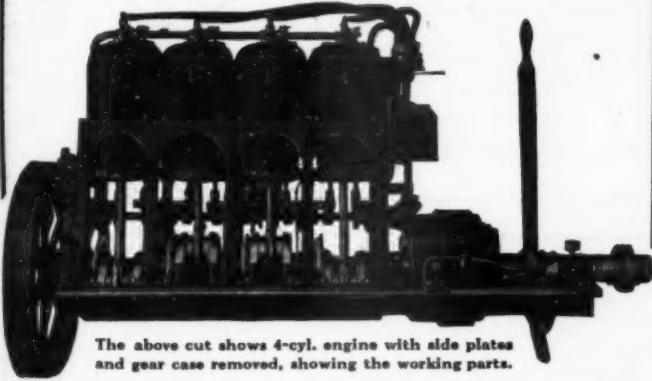
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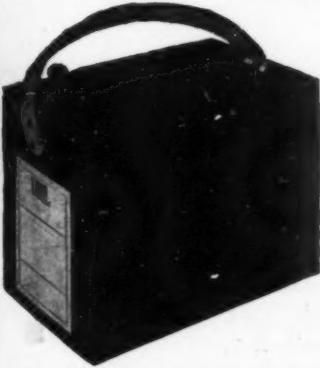
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The above cut shows 4-cyl. engine with side plates and gear case removed, showing the working parts.

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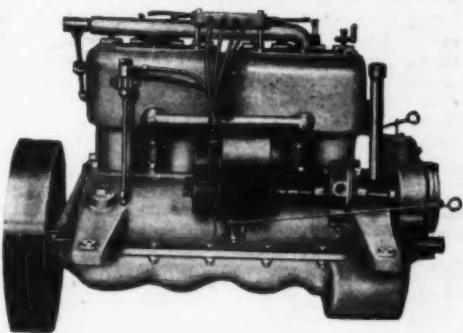
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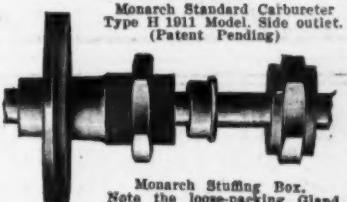
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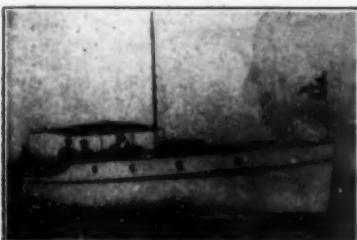
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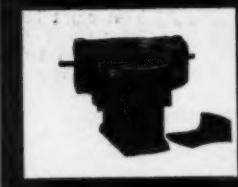
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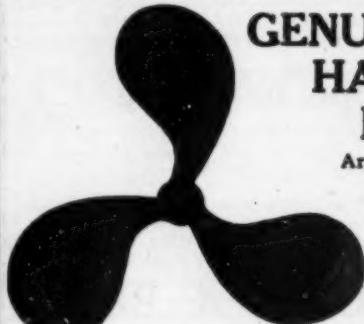
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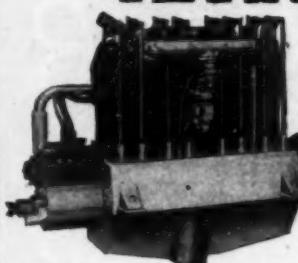
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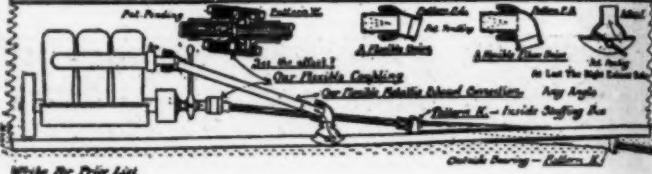
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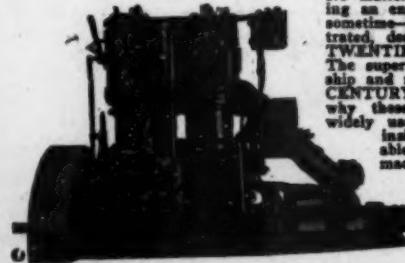
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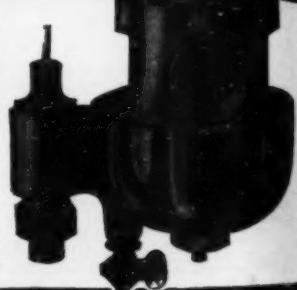
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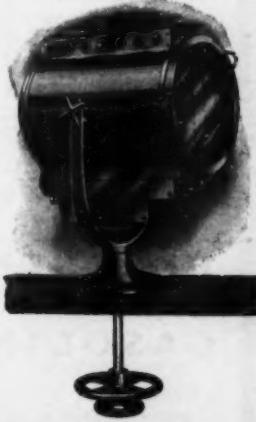
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40 H. P. AEROLITE

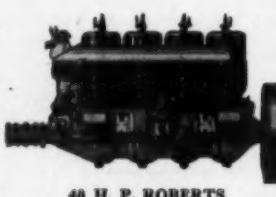
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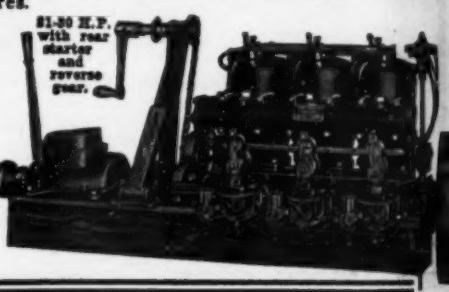
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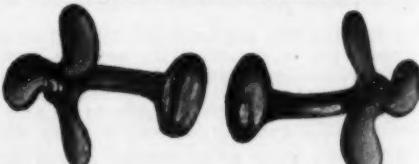
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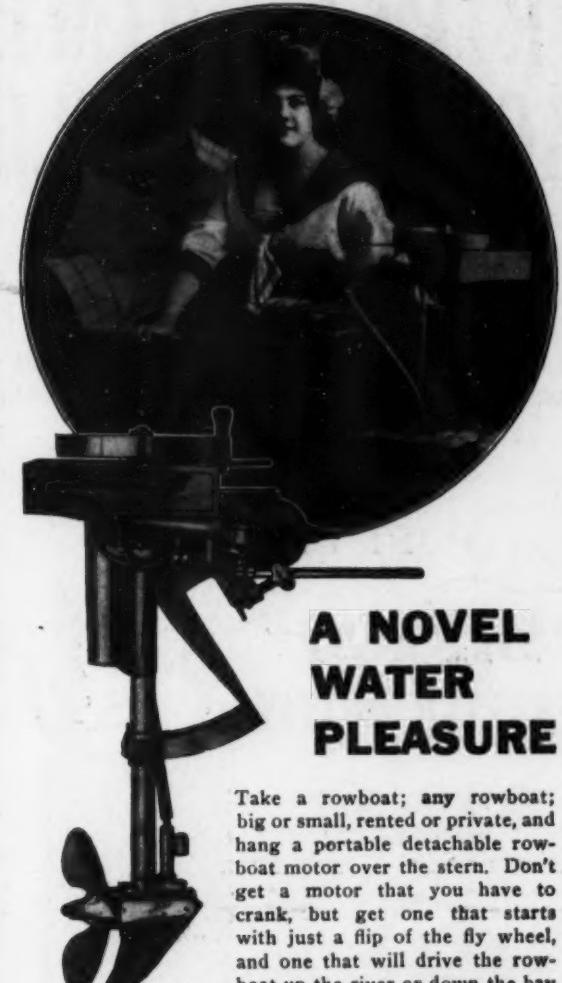
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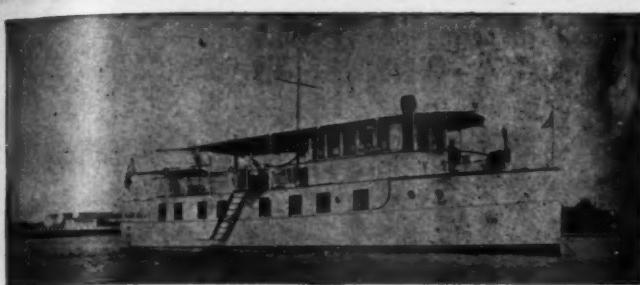
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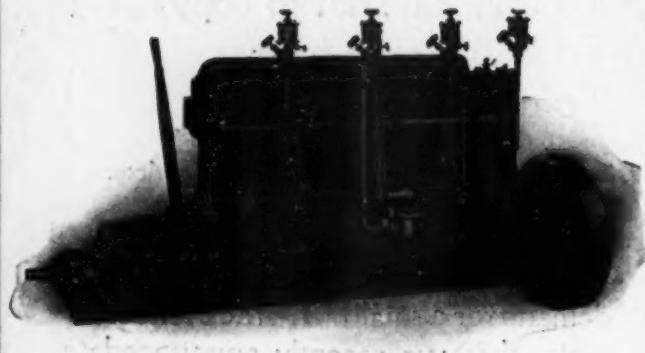
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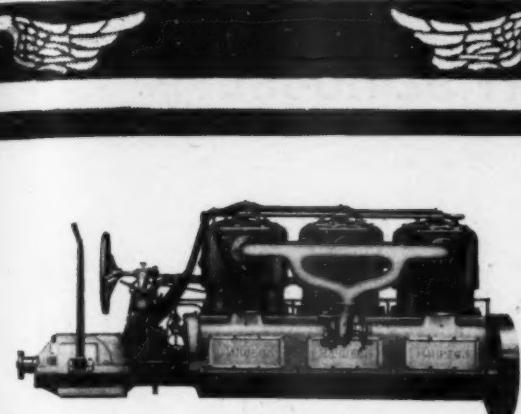
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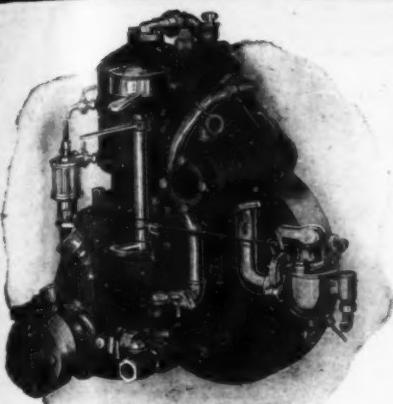
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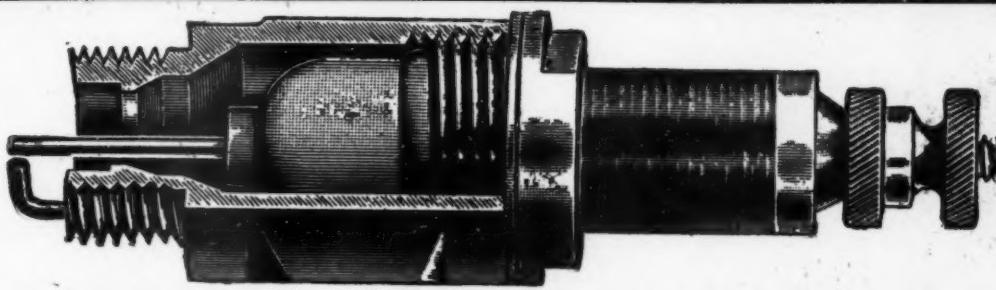
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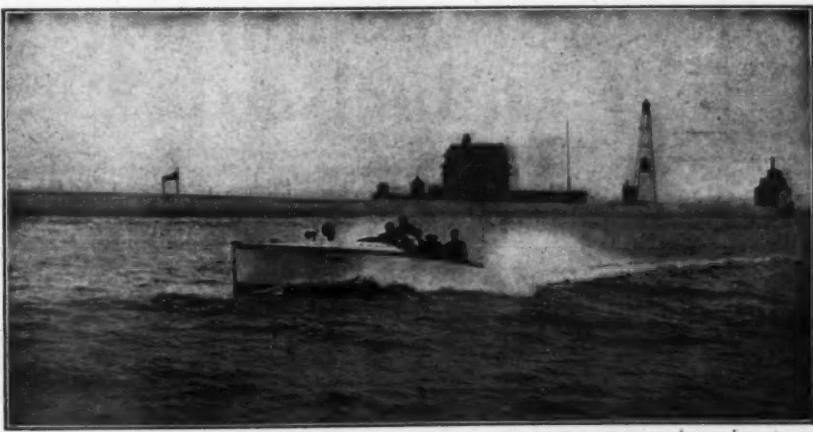
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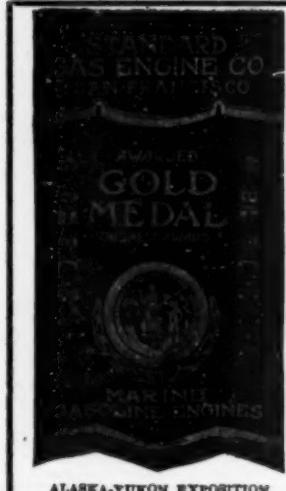
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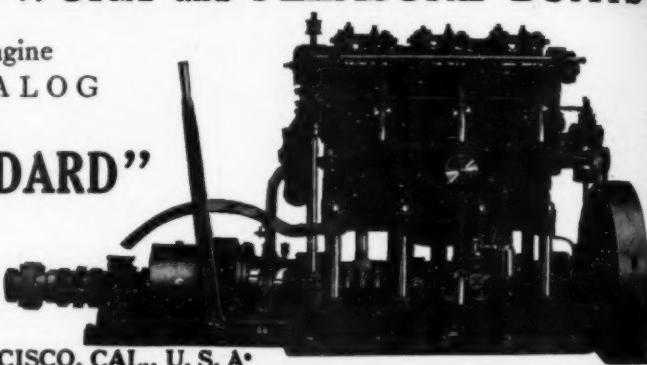
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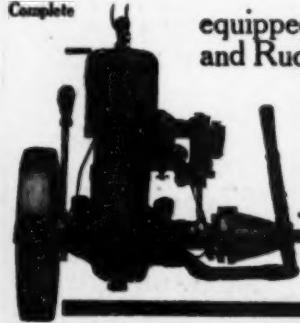
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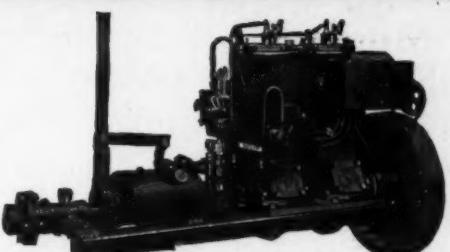
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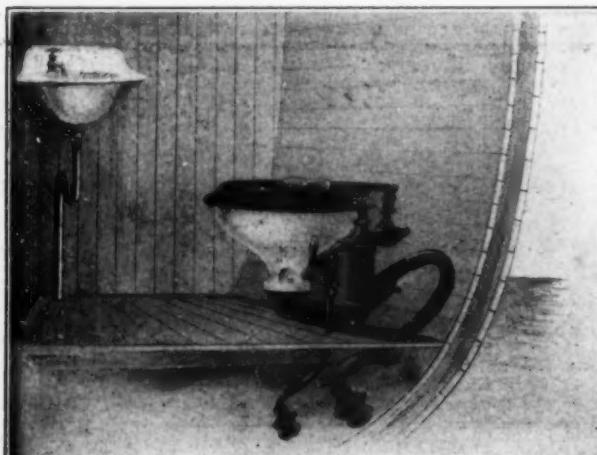


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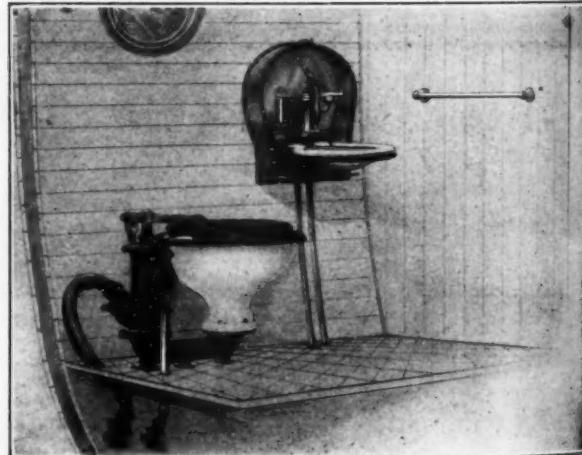
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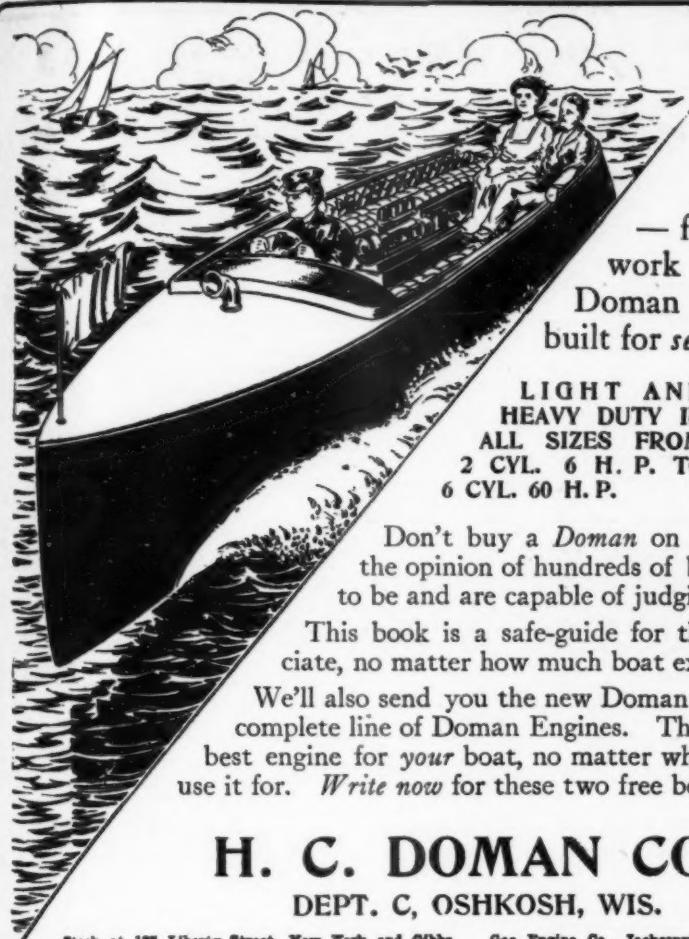
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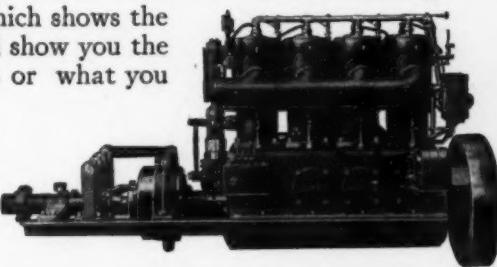
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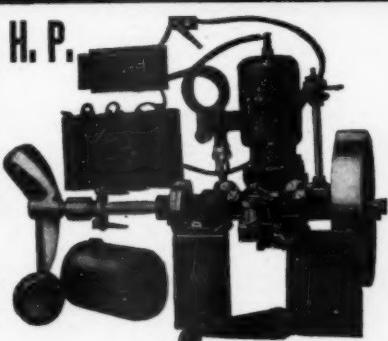
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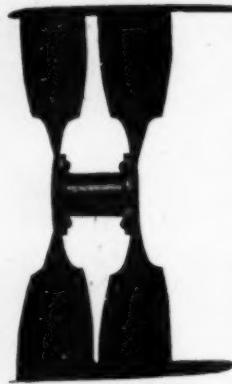
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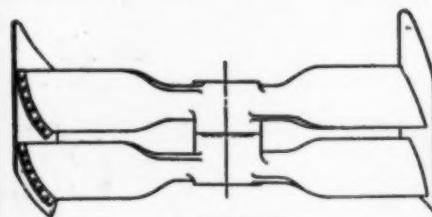
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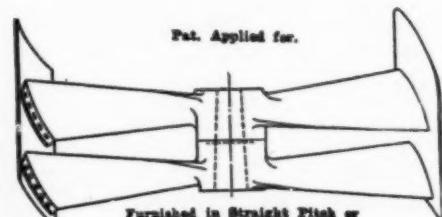


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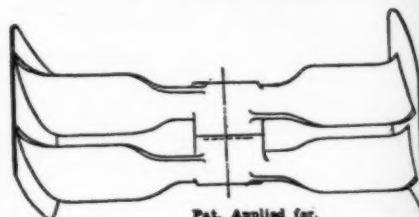
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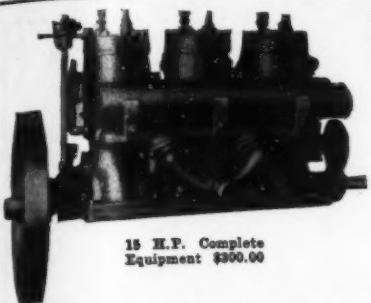
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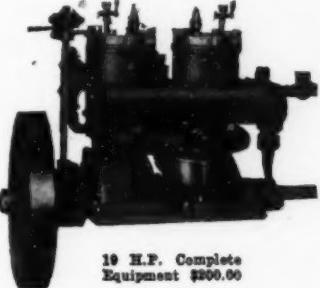
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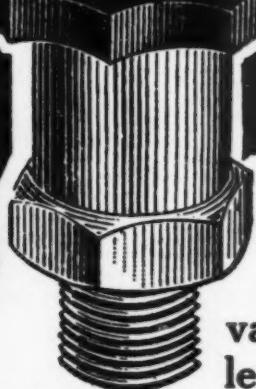
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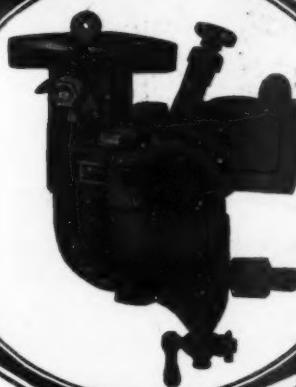


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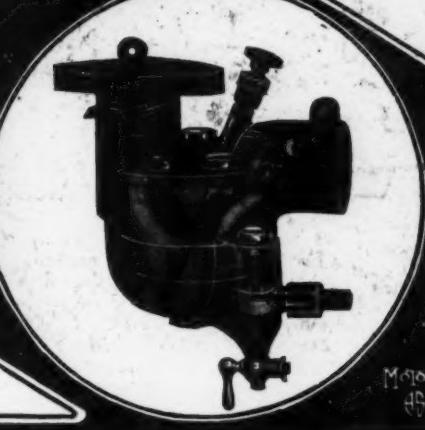
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MOTOR
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KNOX
MOTORS**

The enormous demand for kerosene motors is causing many engine builders to rush headlong into the market with any kind of a makeshift that will enable them to climb aboard the kerosene band wagon. We do not condemn their devices before trial. We merely wish to remind you that conservative buyers prefer to stick to those things which have proved their success in actual service.

Operate on Kerosene, Alcohol, Distillate, as Well as Gasolene

Knox Motors have been built especially for kerosene for the past three years. They are a tried, perfected, proven success. You can buy one with all the assurance of satisfaction that others cannot promise you until three years from now.

The Knox kerosene carburetor was not designed hastily to meet a ready-made demand for lower fuel expenses. It created the demand. It showed other builders that perfection was possible.

Buy a Knox and it will save its cost in one season, then be a clear saving every year in the future—100% interest a year on your investment. Leave the gasoline motor to those who have money to throw away. You can get perfect service in every detail at less than half the cost.

Knox Yawl Launches Five sizes, 19 to 30 ft.; trunk or hunting cabin or open cockpit. Staunch, seaworthy, shallow draft, strongly built. All sizes and types of boats up to 120 ft. built on order.

WRITE TODAY FOR 1913 KNOX CATALOGS

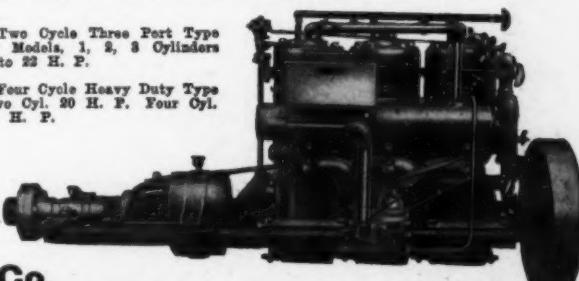
Camden Anchor Rockland Machine Co.

Camden, Maine, U. S. A.

Branches:

180 State St., Boston
99 East Bay St., Charleston, S. C.

38 Coleman Dock, Seattle, Wash.
Merrill's Wharf, Portland, Me.





YOU

*can't afford not to write to
The Holmes Motor Co., Inc.
West Mystic, Conn.*

*for full particulars about the very latest
development of the internal combustion
engine.*

*Costs less—more room in boat—scientifically correct
in design—durability proven beyond question.*

THE APRIL ISSUE OF



WILL BE THE

Annual FITTING-OUT NUMBER

THIS is the issue which reaches boatmen in all parts of the country just before they commence overhauling their boats, engines and equipments for the season's use. The boating enthusiast goes over every detail in his mind before the season permits him to get at the actual work of overhauling. Every bit of information available is carefully read and considered.

This is the time the boating magazines are most diligently studied. All the advertisements as well as the editorial articles are studied if they contain suggestions which affect the subject under consideration.

The ANNUAL FITTING-OUT NUMBER is our means of giving these deeply interested readers some timely information of practical value. For this reason it is your opportunity to reach them with your selling arguments in the form of suggestions for the selection of their outfits.

Your advertisement in April MoToR BoatinG will be an influence in deciding purchases of thousands of dollars' worth of boats and accessories of all kinds. The amount—the force of this influence depends entirely upon you. Don't be satisfied with anything less than the biggest, strongest influence you can create.

APRIL FORMS CLOSE MARCH 10TH. PLEASE SEND COPY AT ONCE

J. S. HILDRETH
ADVERTISING MANAGER

MoToR BoatinG

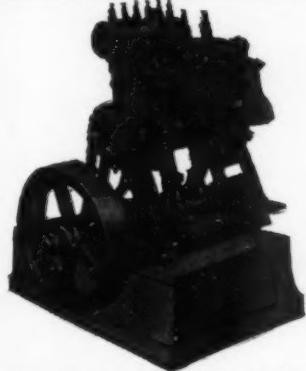
381 FOURTH AVENUE
NEW YORK CITY

Kastrup Reversible Four-Cycle Engine

WE are offering you the best marine engine from several standpoints on the market today. We can give you more advantageous features with this engine than is possible with any other. First, we give you a **REVERSIBLE ENGINE**, which feature alone is sufficient, yet we also give you an engine with **ONLY ONE VALVE AGAINST COMPRESSION** and **ONE CAM TO EACH CYLINDER**; an engine that **DOES NOT CARBONIZE**; and one which **CONSUMES 20% LESS GASOLINE**. This engine exhausts through a port in the lower part of the cylinder immediately after the power stroke, thereby completely scavenging the cylinder. It is never necessary to regrind valves in this engine, money for repairs is unknown, and money for reverse gears saved. Without doubt this is the simplest and most economical four-cycle engine made. The owners of this engine always may have the job of towing other owners home.

To reverse, just retard your spark, cut it out, shift to the opposite side of center and give it the spark again; then away you go, all in a moment. We will gladly tell you more for the asking.

Our 60-Day Special



MODEL J, 3 x 4½, 10-14 H.P.
Only \$200, Complete

For a period of 60 days only you can get this high-speed reversible Four-Cycle Four-Cylinder 10-14 h.p. Engine for only \$200 F.O.B. St. Louis. The equipment includes oiler, plug, storage battery, shafting and propeller wheel. You must send \$50 with your order.

Our Guarantee

We guarantee these engines for a period of two years, provided they are used with ordinary care and attention, and any part found defective will be replaced free of charge if such part is sent to our factory charges prepaid.

Models and Prices

Model	Cylinders	Bore	Stroke	Horse-power	With Battery	With Magneto
E	1	4½ x 5	4	\$125	\$185	\$150
F	1	5 x 6	6	150	160	190
G	2	4½ x 5	8	200	210	240
H	2	5 x 6	12	250	260	290
J	4	3 x 4½	14	250	260	300
K	4	4½ x 5	18	450	460	500
L	4	5 x 6	24	600	615	675

Two-Cycle Engines

No better two-cycle engines are built than ours. They can be depended upon and it does not require a person of mechanical experience to operate one. Our 3½ and 7 horsepower two-cycles are lubricated by means of compression oilers and will be equipped with magneto, either low or high tension, when desired at small cost, depending on the nature of the magneto. We manufacture at present only the 8½ x 8½ in. and 8 x 5 in. in one or more cylinders, and we guarantee these engines to give their rated horsepower. Our prices are right.

Model	Cylinders	Bore	Stroke	Horse-power	With Battery	With Magneto
A2	1	3½ x 8½	8½	\$65	\$75	\$85
B2	1	5 x 5	7	125	140	155
E2	2	3½ x 8½	7	125	135	160
F2	2	5 x 5	16	200	215	240

FEARS MOTOR COMPANY

Rosalie and Fair Ave.
ST. LOUIS

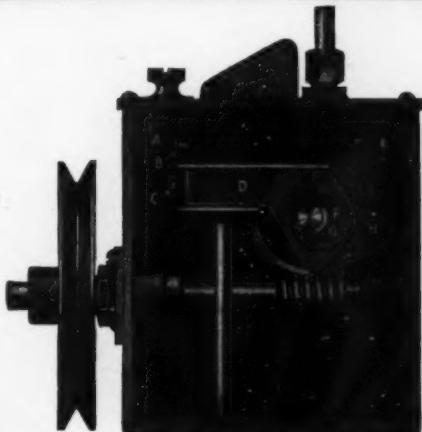
A Detroit Oiler cuts out guesswork

There is no uncertainty involved in the use of a Detroit Mechanical Force Feed Oiler—not an element of chance or doubt is connected with its operation.

The Oiler starts and stops with the engine, and changes its rate of feed to correspond with every variation in the engine speed. There is no opportunity for you to forget to turn your oiler on or off and have a dry bearing or wasted oil as a result—no chance of feeding other than exactly the right amount of oil.

You don't have to watch your lubrication constantly for fear that something may go wrong and your engine be ruined. The Detroit Force Feed Oiler takes care of every detail of the engine's lubrication and does it better than a person could because it is an automatic machine.

The Detroit Oiler gives you freedom from bother and annoyance, protection against wasted oil, and insurance against damage to your engine at all times.



Detroit Force Feed Oilers are made in styles and sizes for every kind of gas engine—marine, stationary, automobile, truck, gas tractor—with pulley, ratchet, gear or sprocket drive for easy installation on any engine.

Write today for Catalog P-64
and full information

DETROIT LUBRICATOR COMPANY.
DETROIT, U. S. A.

Largest Manufacturers of Lubricating devices in the world.

On Sale in Canada by the
Canadian
Fairbanks-Morse Company

The Original Portable Marine Motor—Eighth Year

Better than ever is the new model of the famous "Porto." It gives you the most power for the weight—the most power for the price. Just figure it out. Here's a compact, simple, correctly designed engine, developing **two H.P.** (actual brake rating) that weighs only $27\frac{1}{2}$ pounds per H.P. Has $2\frac{3}{4}$ inch bore and 3 inch stroke. These are the specifications that count.

Because of these facts, the "Porto" drives an 18 foot boat seven miles an hour for four hours on a gallon of gasoline. Results count: The "Porto" has got to make good—every one is **sold on thirty days' trial**. It's the original—the motor that made famous this phrase—

Makes a Motor Boat of ANY Boat in Five Minutes

You can adjust the Porto in a jiffy. Note this new model is copper-jacketed, has underwater exhaust, steers with tiller ropes. Remember, complete outfit (2 H.P. actual brake rating) sold on thirty days' trial.



There is a Waterman Marine Motor for every purpose—for cruiser or canoe—for business and for pleasure. The fishermen of Norway depend on the Waterman in their strenuous work on the open sea—the motor boat enthusiast wins races with the Waterman of a different model. They're all high grade, they're all up to date—they're all low in cost and high in efficiency. Get acquainted with them.



New Catalog waiting for you! Write us today and we'll mail it free

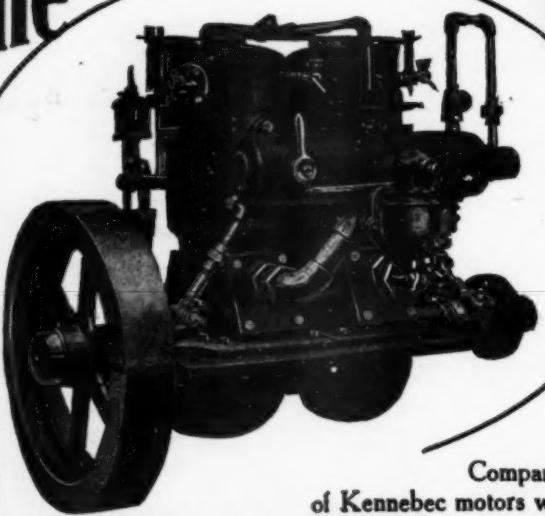
WATERMAN MARINE MOTOR CO., 101 Mt. Elliott Ave., Detroit, Mich.

KENNEBEC

Gasoline

Engines

KENNEBEC
Gasoline En-
gines are not
"rough jewels"
—they are "pol-
ished jewels"
in every respect.
They are sturdy
enough for the
severest working
boat usage, and
handsome and
speedy enough for the finest pleasure boat.



Besides, in the
Kennebec you
get full-rated
horsepower,
plus a little bit
more. Every

Kennebec exceeds
its rated horsepower
by 30 to 40 per cent.

Compare the bores and strokes
of Kennebec motors with those of any other
marine engine of the same horsepower.

Kennebec, 1 cylinder: 2 H.P., $3\frac{1}{2}$ " bore and
 $4\frac{1}{2}$ " stroke; 3 H.P., $4\frac{1}{2}$ " bore and $4\frac{1}{2}$ " stroke;
5 H.P., 5" bore and 6" stroke.

Kennebec, 2 cylinder: 4 H.P., $3\frac{1}{2}$ " bore and
 $4\frac{1}{2}$ " stroke; 6 H.P., $4\frac{1}{2}$ " bore and $4\frac{1}{2}$ " stroke;
10 H.P., 5" bore and 6" stroke.

Kennebec, 3 cylinder: 6 H.P., $3\frac{1}{2}$ " bore and 4" stroke; 10 H.P., $4\frac{1}{2}$ " bore and $4\frac{1}{2}$ " stroke;
15 H.P., 5" bore and 6" stroke.

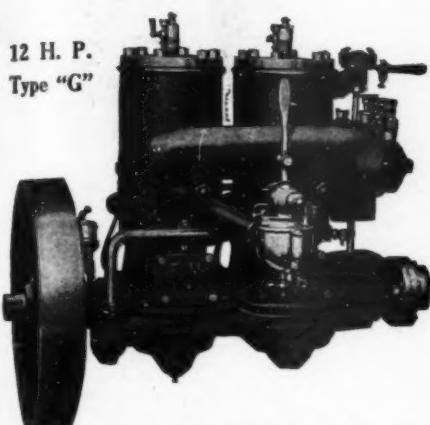
Be sure to get horse-
power for your money

SEND FOR ILLUSTRATED DESCRIPTIVE PRICE CATALOGUE

Torrey Roller Bushing Works, Bath, Maine.

ASK ANYONE
WHO OWNS A
KENNEBEC

Fairbanks-Morse Marine Engine



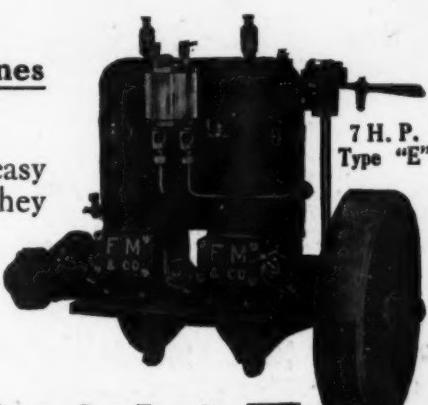
**Two Cycle—3½ to 24 H.P.
For Pleasure Craft and Work Boats**

Engines of unquestioned merit. Built by the oldest manufacturers of internal combustion engines in the United States. Fully guaranteed as to material, workmanship and power.

Over 135,000
Fairbanks-Morse Engines
In Daily Use

All Fairbanks-Morse Marine Engines are simple, easy starting, compact. Working parts are easily accessible. They are remarkable for their reliability and economy in fuel consumption. Price reasonable.

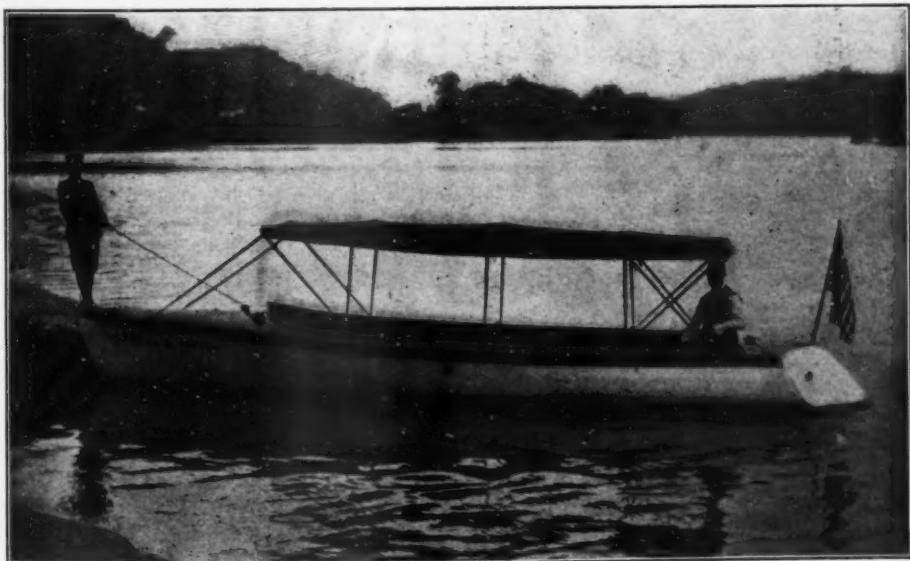
Write for Catalogue No. DA1315, which describes our complete line in detail. Agents wanted.



Fairbanks, Morse & Co.

New York, Chicago, San Francisco
or any of our 30 Branch Houses

The Canadian Fairbanks-Morse Co., Limited, St. John, N.B., Montreal, Toronto. Agents for Canada.



ZANESVILLE, O., October 29, 1912.

My 12-16 H.P. four-cycle outfit has given perfect satisfaction. It gives me a speed of 15 miles in a 26-ft. boat. I ran 1,070 miles this season and used 210 gallons of gasoline and 3 gallons of oil. This is my third engine, and the only engine that I could say was an absolute success. It has not cost me one cent for repairs and is in just as good shape now as when I installed it in the boat. If I can say a good word for the Grimm at any time, I shall be only too glad to do so.

(Signed) CHARLES P. MOSS, Zanesville, O.

This letter was unsolicited by us. It is but one of many hundreds we have received and which establish beyond doubt the high quality of workmanship and material in our engines as also their great efficiency. "Fair price for best quality" has always been our business policy. It pays to buy a Grimm.

GRIMM MFG. CO., 43 KEYSTONE ST. | BUFFALO, N. Y.

**THE PAST
SEASON'S
EXPERIENCE**

WITH A



The Motor That Makes Friends

The motor that insures the horsepower that you pay for; without the expense of repair bills — annoying, too, when you want to use the boat and the motor is out of commission.

The "GRIMM" has solved the power problem from 6-H.P., 2-cylinder to 25-H.P., 6-cylinder, and the catalogue tells all about them — just fill in the slip and mail it. You will get something interesting.

NAME.....
TOWN.....
COUNTY.....
STATE.....

TREBERT

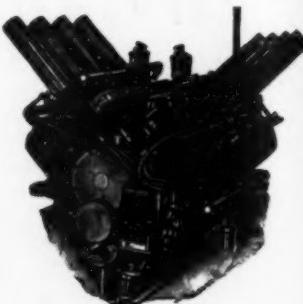
RELIANCE
GASOLINE
PATENTED
ENGINES



Poppet Valve Type

4 Cyl. Poppet Valve Type Net Prices

4/40.....	\$675.00
4/60.....	1012.50
6/60.....	1012.50
6/90.....	1687.50
4/75, Heavy duty.....	1400.00



8 V-Piston Valve Type

8 Cylinders "V" Shape

Bore 4 $\frac{3}{8}$ x 5. Patented Piston Valve Type. CRANK SHAFT—nickel steel, oil treated; BEARINGS—of special bearing metal; LUBRICATION—is forced through hollow crank shaft by means of a plunger pump; IGNITION—is a Bosch dual magneto; REVERSE GEAR—is multiple disc friction drive. Engine equipped complete, including 1-1 $\frac{1}{2}$ gear box, shaft and propeller.

Net Price, \$1350.00

ENGINES FOR SPEED

If you wish to reach the mile a minute speed your boat should be powered with our "V" shape Piston Valve Engine.

8 cyl., 80-100 H.P., weight 650 lbs. complete.
16 cyl., 160-200 H.P., weight 1200 lbs. complete.

H. L. F. TREBERT ENGINE WORKS, 495 St. Paul St., Rochester, N. Y.

THE MIGHTY MERCURY

This is the Motor that drove the 20 ft. hydroplane GUNFIRE Jr. through the following list of racing records for 1912.

May 30th—Atlantic Yacht Club, Seagate, N. Y., finished first, 25 miles.

June 8th—Columbia Yacht Club, New York City, finished first, broke record for New York-Ardsley course, 30 nautical miles.

July 4th—Red Bank, N. J., finished fourth, nine starters, struck submerged log, lost one propeller blade, 20 miles.

July 23rd—Larchmont Yacht Club, Larchmont, L. I., finished first. Won 20-foot championship of Long Island Sound, 30 nautical miles, establishing a new record for this course.

August 11th—Huntington Yacht Club, Huntington, L. I., finished first, 25 nautical miles.

August 24th—Atlantic Yacht Club, Seagate, N. Y., finished first, displacement boat class, 15 miles.

August 24th—Atlantic Yacht Club, finished first, Hydroplane class, 15 miles.

August 24th—Seagate, N. Y., finished first in free-for-all race, 20 miles.

N. B.—Three consecutive races same day. Three firsts, total mileage, 60.

Sept. 17th, Sept. 18th, Sept. 21—Series race for Interstate Championship Trophy. Hudson River Carnival, New York City. Course 30 nautical miles, each day, Gunfire, Jr., second 23 points.

N. B.—Winning boat protested, Gunfire Jr. may be awarded trophy.

Sept. 21st—Columbia Yacht Club, New York City, finished first, New York-Ardsley course, 30 nautical miles.

Die cast bearings and every bearing surface is uniformly larger than the corresponding bearing of any other motor.

2 $\frac{1}{2}$ valves, both inlet and exhaust. Capacious water jackets.

Reverse gear bed, cast integral with lower half of crank case.

eliminating ringing and rattling noises.

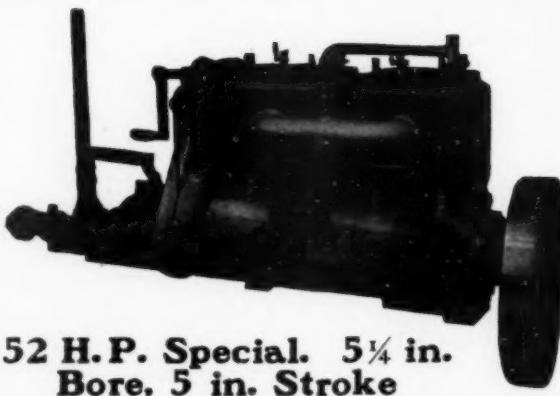
Positive lubrication to every friction point. Becker imported Hollow steel wrist pins.

For racer, cruiser or working boat, the Mighty Mercury has no superior for power, flexibility and durability. None could be better designed, more carefully built or constructed of finer materials. Write today for the Mercury Book.

TWO NEW MODELS. 6 $\frac{1}{2}$ in. BORE X 7 in. STROKE

4 Cylinder—125 Horsepower

8 Cylinder—250 Horsepower



52 H.P. Special. 5 $\frac{1}{4}$ in.
Bore. 5 in. Stroke

Flexibility and smoothness of operation are the qualities that most distinguish this exceptional motor.

Paragon special reverse gear with positive reverse lever lock,

Eldridge-Whitaker Hydroplane



A Superb Stock Model

25 Miles Per Hour Guaranteed

20-ft. 4 Passenger 30 H. P. Motor

Beautifully Finished in Mahogany

The Eldridge-Whitaker Hydroplane presents all the best ideas in up-to-date motor boat and hydroplane construction, developed to the point of greatest practicability for the average boat owner and enthusiast. Fast, comfortable, dry, seaworthy, easily controlled—it is equally valuable as a racer or speed boat, a family runabout or a yacht tender.

Last season a run of 56 miles was completed in 1 hour and 50 minutes—an average of better than 30 miles per hour. We mention this one performance simply because it is typical of the results which may be expected. During the season it encountered all sorts of seas and proved itself capable and safe under every condition. After a year of success this model has been perfected to be better than ever for 1913.

Priced at least 40% lower than a single boat would cost if built from the same plans, with the same quality of materials, workmanship, finish and equipment. Sold complete with 30 H.P. Featherweight Erd Motor and all equipment ready to drive. Also sold Knocked Down crated for foreign or domestic shipment.

Write today for price and full information.

ALBERT E. ELDRIDGE CORPORATION

Fulton End Concourse

30-50 CHURCH STREET, NEW YORK

Distributors for Lamb, Fulton and Erd
Featherweight Motors

16-Foot Nantucket Dory

The most seaworthy and most substantially built boat of its size in the world. The most Real Boat ever offered at the price. $\frac{1}{2}$ H. P. Fulton motor. \$250
Also sold Knocked Down

**ANY
SIZE**

NIAGARA

**ANY
TYPE**



CRUISERS RUNABOUTS SPEED BOATS

Don't Miss These New Designs. Send for Plans and Estimates

NIAGARA K. D. BOAT FRAMES

Start Your Boat. You Will Want It in the Spring

With a Niagara frame it is a very simple matter to build a boat of any type you wish to select. These frames, unlike any others, are first completely erected in our shops and each part made to fit perfectly. Reassembling, therefore, is a mere matter of matching up the numbers found on each piece.

Niagara designs will be found to be new and strictly up-to-the-minute. They are the work of a competent naval architect of national prominence. In addition to getting a perfect frame constructed of selected material, you also get a scientifically designed hull.

Send 5 cents postage for the handsome book of new designs.

NIAGARA MOTOR BOAT CO., 210 Sweeney St., North Tonawanda, N. Y.

The Dale "30"—An Ideal Cruiser

Length 30ft. Beam 8ft. 4in. Draft 2ft. 6in.

This is the Cruiser You Want

The Dale "30" is largest, most complete, best designed, finished and equipped cruiser you ever saw for the price. It has accommodations equal to most 35 footers. Toilet, lockers, ice box, clothes closet, oilskin locker, dish closet, running fresh water to sink and lavatory. Sleeps four comfortably.

Workmanship, materials and finish are best quality throughout.

Oak keel and timbers; white cedar planking. Speed 10 miles with 12 H.P. Lathrop Engine; reverse gear.

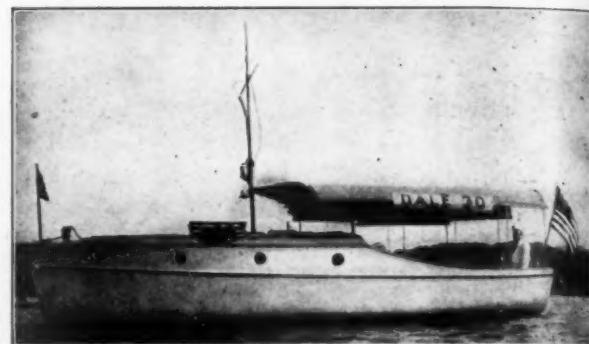


The sketch at the left shows the bulkhead control of the Dale "30." Beside the Brass Steering Wheel is our Positive Engine Control which we designed especially for this boat because it is better, stronger and more convenient than anything we could buy. The lever of reverse gear is in the floor of the cockpit at the left of the steersman. The Dale Control is sold separately for \$12.00.

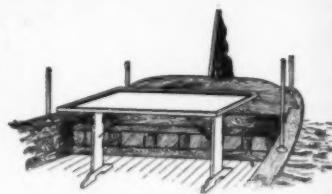


12-ft Skiff or Dinghy

12-ft. Skiff or Dinghy. Weight 125 lbs. Complete, \$16. All lumber cut and machined with molds, plans and directions, \$10. Any amateur can build it.



The sketch at the right shows the Dale Folding Table set up in the cockpit. This table is firmly fastened to the floor and can be set up or taken down, folded up and stowed away in a few seconds. May be used in either the cockpit or cabin, or changed from one to the other in one minute. The Dale Folding Table is sold separately for \$10.



Many visitors at the New York Show pronounced the Dale "30" the most desirable boat of the size or price ever built. Several boats of this model are now in use and the owners are more than satisfied with them.

PRICE With engine and reverse gear \$1200.

With complete equipment ready to cruise, as exhibited at New York Show \$1500.

Let us send you further details of this wonderful boat. Write us today.

Wm. L. Dale, 123 River Ave., Bronx, N.Y.

Concentrate Your Purchases

with a modern, progressive supply house, centrally located, doing business with a big, clean stock in an up-to-date plant.

GEO. B. CARPENTER & CO.

430-440 WELLS ST., CHICAGO—"THE GREAT CENTRAL MARKET"

Manufacturers and Jobbers of
Marine Supplies, Motor-Boat Fittings, Racing Sails, etc.

Send 20 cents in stamps to cover postage on our 500-page Marine Supply Catalog, to be refunded on your first order
If you already have the catalog, send for our

1913 NET PRICE LIST

Ready soon—issued free—an innovation in the trade

Perfex

Is Now THE Standard
FOR

Vonition



MASTER VIBRATOR

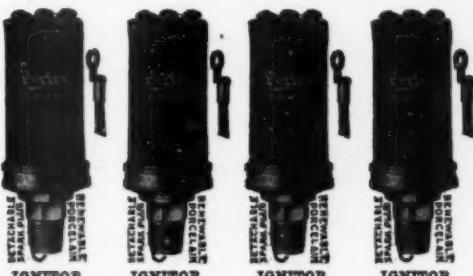


CURRENT ALTERNATING TIMER



SAFETY SWITCH

NO SECONDARY WIRE EXPOSED

A COMPLETE 4-CYLINDER PERFEX OUTFIT
WRITE FOR CATALOGUE NO. 100Electric Goods Mfg. Co.
P. O. Box "D" Canton, Mass.J. E. Sitterley, Export Mgr.,
47 Broadway, New York.

Gentlemen:

Muskegon, Mich., Jan. 14, 1913.

Both the "PERFEX" plug and vibrator have been used on my boat constantly for three years without ever touching the plug in the way of any repairs, and the vibrator is just as you see it, the points never having been touched from the day I began using it.

I have great praise to offer for the "PERFEX" Ignition and think it is of interest to you to give an experience which occurred on December 14th last. On that day it was necessary to cross the lake to get a chain tackle with which to put up my boat, and as the sea was running very high and freezing as it came aboard, I would have been a fine object for the camera expert. The distance across at this point is two miles, and the sea came aboard so fast that my boat—both deck and seats—were one sheet of ice; it being necessary for my wife to take the stove poker and knock the ice off the buttons on my coat before I could remove it.

The "PERFEX" plug was as completely incased in ice as it would have been possible to do artificially, and it was necessary for me to take a screwdriver and break the ice from it before I could remove the wires. This speaks pretty well for the "PERFEX IGNITION."

Very truly yours,

(Signed) R. J. MIDDLETON,
Care of Continental Motor Mfg. Co.

Owners Are the Best Satisfied
Motor Boat Owners

Because

- First** They have clean, cool, noiseless engine rooms.
- Second** They have "that feeling of safety" in any kind of weather.
- Third** Their engine does not require attention more than once or twice a day, therefore giving a trip of pleasure.
- Fourth** RALACO Engines have given those who want to run their own boats, the chance to do so, without the necessity of being always in overalls.
- Fifth** RALACO Engines are easily understood, as simplicity is the chief feature of their design.

Before buying, it is your duty to investigate this wonderfully clean, noiseless, dependable engine.

Sizes from 10 to 75 H. P. for all the better class of cruising and working boats.

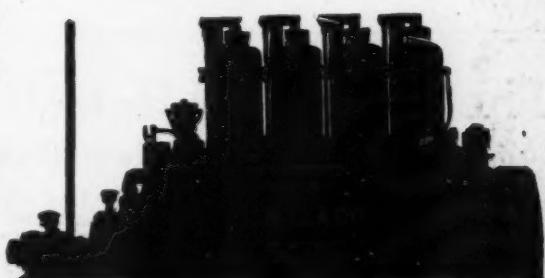
THE S. M. JONES COMPANY
Main Office and Factory: 616 SEGUR AVE., TOLEDO, O.

New York Office, 136 Liberty Street.

AGENTS:

Olsen & Jarvis, The Bourse, Philadelphia, Pa.

A. W. LePage Gasoline Eng. & Supply Co., Vancouver, B. C.



THE ROPER WHEEL

When your boat is equipped with the Roper Wheel, the *danger of collisions is reduced to the minimum*. You have your boat under absolute control at all times, under all conditions and stoppage of the engine prevented.

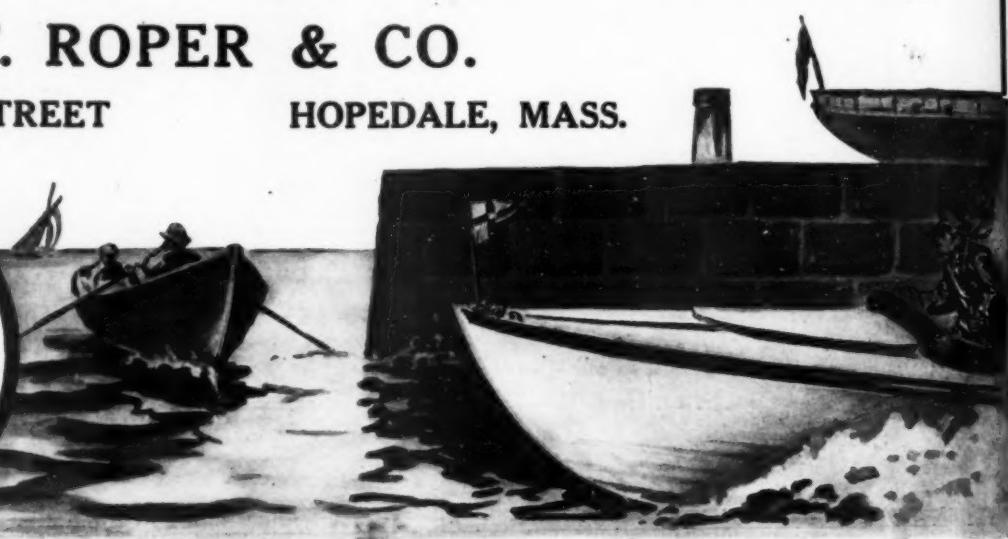
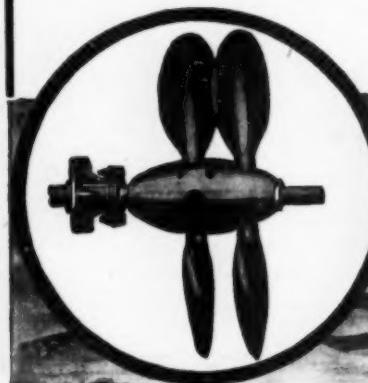
Because: the Roper wheel gives you any speed, from absolute rest to full speed in either direction without changing the speed of the engine in the slightest. Absolute speed control in a two cycle engine is possible only with the Roper Wheel.

Better get in touch with the Roper at your dealer's or write us for catalog of evidence.

C. F. ROPER & CO.

5 NOTHROP STREET

HOPEDALE, MASS.



IMPORTANT ANNOUNCEMENTS

JOE'S Duplex Friction Drive High Power Gears

FOR HEAVY DUTY MOTORS UP TO
45 H. P. PER 100 R. P. M.

The gearing is quadruplex and the duplex friction drive is arranged to take the driving strain off of the gearing on the go ahead. *The only commercial gear on the market for big high power heavy duty work. Builders of business motors, this is what you are looking for. Write for particulars.*

AT NEW YORK AND BOSTON SHOWS

JOE'S Safety Rear Starter

Made in two sizes, up to 60 h.p.
Non-kick back, will release instantly and noiselessly. Can be fitted to any engine.

Write for prices.



1913 MODEL REVERSE GEAR

The Snow & Petrelli Mfg. Co. 152 Brewery Street New Haven, Conn., U. S. A.

AGENTS:

J. King & Co., 10 Church Row, Limehouse, London, Eng.
L. H. Coolidge Co., Seattle, Wash.
The Canadian Motor & Supplies Co., Montreal, Canada.
Fairbanks Co., Hamburg, Germany.
Gasolene Engine Equipment Co., 133 Liberty Street, New York.

WHERE OTHERS FAIL



OILS AND GREASES

"Make Motors Make Good"

LUBROLEINE MOTOR OILS are made from premium Pennsylvania crude, in five grades, Crystal, Special Light, Light, Medium and Heavy. Will flow freely in coldest weather. Give maximum compression with increased power and are free from carbon forming impurities.

LUBROLEINE GRAPHITE GREASE. This preparation is a perfect combination of American graphite and high grade lubricating grease. Is unaffected by climatic changes, impervious to water or steam, will not gum and contains no acid. Recommended for gears and bearings.

LUBROLEINE CUP GREASE. A solidified oil for use in compression cups and bearings. Free from acid and insoluble in water.

We want responsible Agents in New England and the middle States. Write for our proposition.

FISKE BROTHERS REFINING COMPANY

ESTABLISHED 1879

Pittsburgh

Head Offices: 24 BATTERY PARK BLDG., NEW YORK

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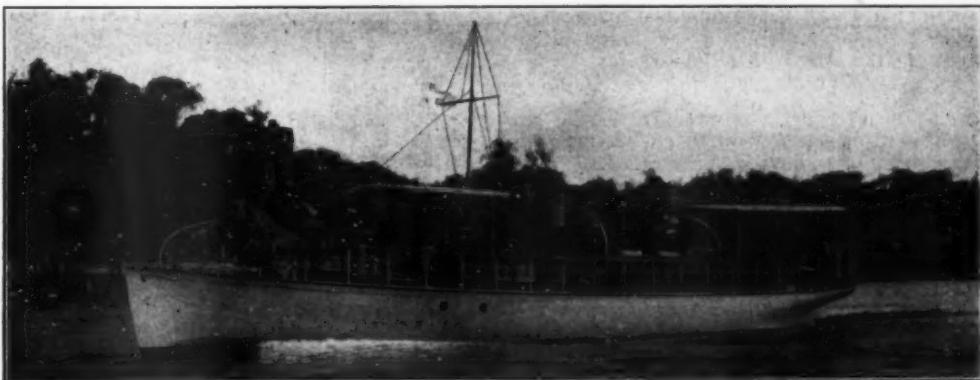
For Pacific Coast

WATERHOUSE & LESTER CO.
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Yachts and Launches — Steam Boilers and Engines Speedway Gasolene Engines



Com. A. B. Waring's Twin Screw, 65-ft. Speedway Yacht Ioneta, Moosehead Lake Yacht Club.



Send for illustrated catalogue. Address, DEPT. A

Gas Engine & Power Co. and

Charles L. Seabury & Co., Consolidated

Morris Heights

New York City

These keen judges of practical motor performance and reliability equip their boats for the New York Show with Loew Victor Engines:

Lawley Hand Valley Mullins

You naturally want to buy for your own boat the motor that is used by these men who know; you couldn't have a better endorsement of the superiority of the

LOEW VICTOR MOTORS

You'll get your best evidence of the reliability and service of the Loew Victor from the successful experience of Geo. P. P. Bonnell. Mr. Bonnell pushed off on his famous cruise from New York to Nova Scotia without any previous trial. His 21-miler, "Old Glory II," was equipped with a Model 5, Loew Victor; the whole motor boating world knows that he went to Digby and back without engine trouble.

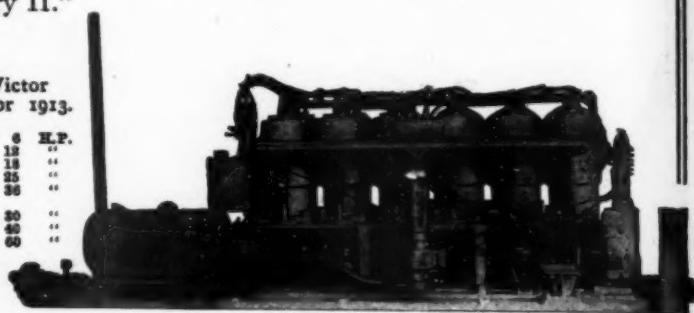
A YEAR AHEAD

Four and six cylinder Loew Victor Motors for 1913 are equipped with a simple and dependable Electric Self-Starting and Lighting Outfit which not only starts the motor cold, but furnishes ample and undiminished current for running lights, cabin lights and searchlight. Does away with complicated lighting plants in present use. Operates automatically without attention—and always works.

We've made a little book out of Mr. Bonnell's account of "Old Glory II's" maiden voyage. Yours upon request.

WRITE FOR OTHER PARTICULARS OF LOEW VICTOR.

Loew Victor Motors for 1913.		
Med. Duty.		H.P.
1 cylinder	6	H.P.
2 "	12	"
3 "	18	"
4 "	25	"
5 "	36	"
High Speed.		
4 "	30	"
5 "	40	"
6 "	60	"



1913 Model No. 14 Loew Victor Motor, equipped with Electric Self-Starting and Lighting Outfit

The Loew Manufacturing Co.

2003 MADISON AVE.
CLEVELAND, OHIO

Becomes World Beater Because— Planhard is Used

A Planhard carburetor was put on the motor in the 19-foot, 3,000-pound Delphi II in place of a very prominent make of carburetor. The Planhard increased the motor speed an additional 230 r.p.m., increasing the speed of Delphi II from 27 to 30½ miles per hour. Delphi II is the fastest boat in the world of her size and handicap.

The Planhard will pay for itself shortly and thereafter make money for you. Money back in 30 days if not satisfied.

Send for Free Chart and Book

We have a chart showing the amount of gasoline money saved every 10 hours on a 10% to 25% saving for motors up to 30 H. P. You can locate the point at which the Planhard will have paid for itself and thereafter pay you a cash return.

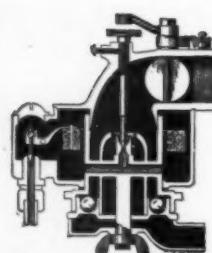
Absolutely Automatic. No springs, levers or cams. Permanent adjustment. Gives increased power and speed with any gas in any weather.

If You Want

More Power More Speed
Better Control, With Less Gas

FILL OUT AND MAIL COUPON

Planhard Mfg. Co., 1788 Broadway, N. Y.
Gentlemen:—Send me at once a copy of your chart and book.
Name.....
Address.....
City..... State.....
My engine is..... Carburetor size..... in. (State whether flanged, threaded, horizontal or vertical)



Note simplicity of Planhard.

Gallon Less Per Hour!

on semi-speed boat

HARTFORD III

Mr. Smith saves \$2.00 every 10 hours on basis of 20c. gas, with better control. Why not less for your boat?

THE GRAY & PRIOR MACHINE CO.
Portland, Me. Branch

Planhard Mfg. Co.,

Gentlemen: I used one of your Planhard carburetors on the 20 h. p. model X Hartford motor in my semi-speed boat Hartford III during 1912.

My boat is well equipped to make tests, as I use a tachometer.

I get better control with a Planhard and use practically one gallon of gasoline less per hour than when I used one of the most popular carburetors in use today. I have put a Planhard on my automobile as well. Very truly yours,

A. N. Smith.

Read this letter and think it over!

THE EMERSON ENGINE CO.

Alexandria, Va., Jan. 16, 1912.

Gentlemen: After using such carburetors as the _____, _____, _____, _____, and many other makes for the last three years, and after testing innumerable makes that are commercially available, we have decided to adopt the "Planhard" as our regular carburetor equipment. We congratulate you as makers and ourselves for having found the "Planhard."

H. E. Jenkins, V.-Pres. and Sec.

\$45 Buys This 2 H.P. Guaranteed For Life AMERICAN Non-Cranking Engine

Built in Sizes up to
30 H.P.

Think of it!

A complete marine engine, propeller shaft, propeller, stuffing box and all—an engine that never has to be cranked and is guaranteed for life—for only \$45.00.

"Impossible," you say. Maybe so, with other engine manufacturers. But with us it is true—absolutely. And we'll send the engine on 30 days' trial to prove it.

We positively offer you this high-grade 2 horse power engine at a price that no person wanting a motor of this size can afford to ignore. Many times this little engine has developed more power than other so-called 3 horse power engines. Many times it has lent a tow to boats with much bigger engines. Never has it had to ask for such assistance.

Simple—Efficient—Reliable—Durable—Sold on 30 Days' Trial

There's nothing about this little American to get out of order. It has no gears—no Cams—no springs—nothing to give trouble. And it's so simple that any member of the family can run it. Always ready—always dependable. Uses gasoline or kerosene. And, remember, that every American engine goes out under 30 days' free trial and a life guarantee.

We are never satisfied until you are.

Have Your Row Boat "AMERICANIZED"

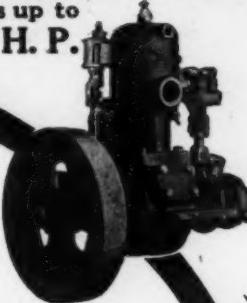
The American is the easiest engine to install in a row boat ever built. It will drive any canoe or row boat through the water like an arrow. It can be run slow enough to troll. Needs no reversing gear—simply reverse the engine—you can do it without stopping. A better engine for the fishing, hunting, camping or Summer home boat cannot be found. SEND FOR THE PROOF. Get our catalog now. Shows our complete line of engines from 2 to 30 horsepower.

Complete "American Special" Launch—Only \$125

Just the thing for fishing, hunting or Summer home. No vibration—no noise—no trouble. Will run in very shallow water. Seats 7 to 9 people. Driven by our standard 2 horse-power American engine described above. Send for literature.

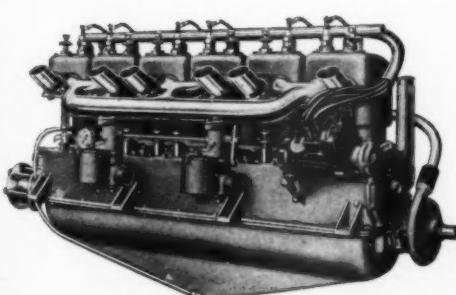
American Engine Company
468 Boston St., DETROIT, MICH.

\$125
Buys
This 16-ft.
Launch



Sturtevant
REG. U. S. PAT. OFF.

MOTORS for MARINE SERVICE



Sturtevant Motors for Speed Boats combine light weight and high power without sacrificing strength and dependable operation

Only those principles of gas engine design which have been proven best in automobile practice are embodied in these engines.

The pressure lubricating system is entirely self-contained—automatic and positive, guaranteeing continuous operation over long periods.

Built in two sizes—4-cylinder, 40 H.P., weight complete 250 pounds; 6-cylinder 60 H.P., weight complete 350 pounds. Equipped with "Mea" or "Bosch" waterproof Magneto and starting crank.

Catalog No. 2006 sent upon request

Sturtevant Direct-Connected Electric Generating Sets for Searchlight, Lighting and Wireless

The motors are designed to operate on either gasoline or kerosene. They are of the 4 and 6-cylinder automobile type, and direct-connected to the generators.

The generators are wound for all standard voltages direct current, and for 5, 10 or 15 K.W. capacity. This direct-connected multiple cylinder design permits operation direct upon the circuit entirely eliminating intermediate storage batteries.

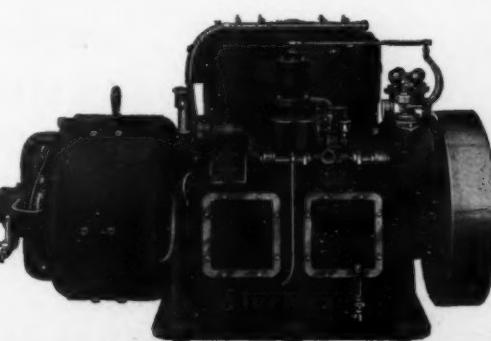
Hundreds of Sturtevant Generators are in use in the United States Navy and the Merchants Marine.

Catalog No. 2058 sent upon request.

For Sale by

**B. F. Sturtevant Company, Hyde Park, Boston,
AND ALL PRINCIPAL CITIES OF THE WORLD**

Agents for Sturtevant Manufacturing Company





TROPHIES WON IN 1912 BY BABY RELIANCE II

M. V. P. A. at Davenport, July 4, 5 and 6.

Mississippi Valley, 20-foot Championship.....	Baby Reliance II	Mississippi Valley, 40-foot Championship.....	Baby Reliance II
Mississippi Valley, 26-foot Championship.....	Baby Reliance II	Mississippi Valley, Mile dash (at rate of 53.7 miles per hour) Championship	Baby Reliance III
Mississippi Valley, 32-foot Championship.....	Baby Reliance II		

W. P. B. A. at Chicago, August 10 to 17.

W. P. B. A., 26-foot Championship, Weckler Trophy,	Wrigley Trophy	Baby Reliance II
Baby Reliance II	Championship Mile trials	Baby Reliance II
40-foot Championship	Baby Reliance II	

Huntington Bay, August 31.

First Heat British International Race.....	Baby Reliance II
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At Buffalo, September 13, 14 and 15.

Great Lakes, 32-foot Championship	Baby Reliance II	Interlake Championship	Baby Reliance II
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When buying your boats this year ask those who guarantee from 40 to 50 miles an hour these questions:

Questions.

Our Answers.

When was 40 miles of Official Speed made?.....

Several times.

Where?

Several places.

What Boats have you defeated?

We have defeated all of them.

What Trophies won?

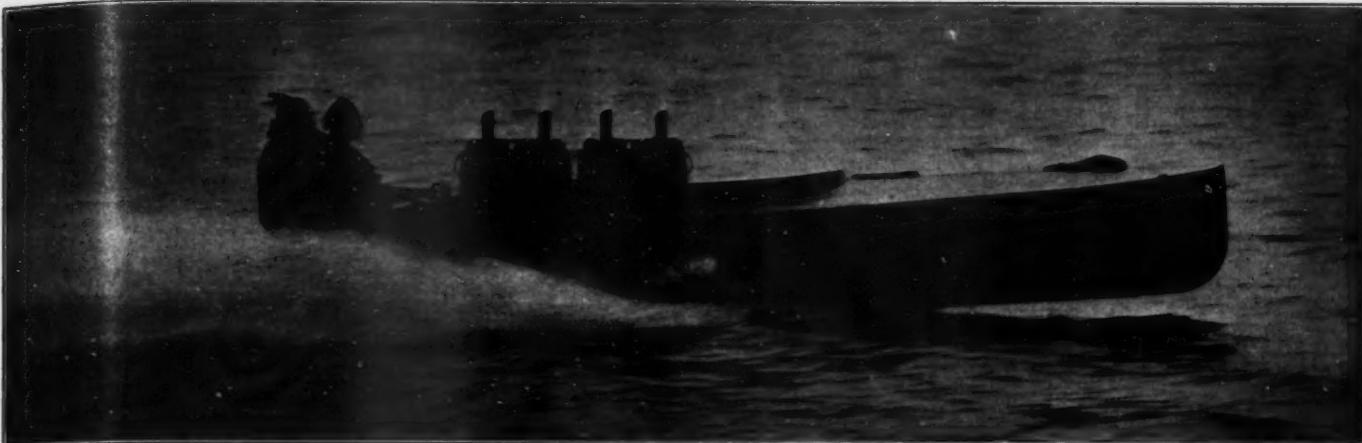
We brought home all the coon skins.

**WE ARE OFFICIAL HOLDERS OF ALL WORLD'S RECORDS
COME TO US FIRST YOU WILL LATER ANYWAY**

WHY NOT NOW?

BABY RELIANCE BOATS

S THE BOATS THAT HAVE WON
SMITH - RYAN
BOAT AND ENGINE CO.
ALGONAC MICHIGAN.
DEPARTMENT B



WORLD'S CHAMPION BABY RELIANCE II

WE LEAD -- OTHERS FOLLOW

THIS year you must come to us for speed. We have shown that we can deliver the goods. We hold all official world's records from 1 to 35 miles regardless of size of boat or horse power.

We have show rooms at our factory and have boats in stock at all times. Come and see them launched, try them out and when we show the guaranteed speed, ship them home. Come, see, and be convinced.

Duplicates of Baby Reliance II Now In Stock

Official Speed 51.50 Miles per Hour

Our Positive Guarantee 47 Miles per Hour

For further information write us

OWN A "RELIANCE HULL"

For the past two years we have been asked to furnish plans of the "Reliance Hulls," but up to now we have refused to sell them as we were after the fastest boat in the world. Knowing that it took a "Reliance Hull" to beat a "Reliance Hull" we took no chances.

Now, that we hold all official world's records from 1 to 35 miles, regardless of size of boat or horse power and have patents pending on our principles, we are offering a limited number of blue prints and specifications of Champion Baby Reliance II. We also will furnish full size accurate patterns of the stem, stern, step, keel and forms, or, the stem, stern, step, keel and forms with stock for ribs cut and accurately fitted ready to put together.

Prices from \$25.00 for plans and specifications to \$125.00 for knock-down forms. For further information write us.

We are in no way affiliated with the Reliance Boat Co., of New York

BABY RELIANCE BOATS

THE BOATS THAT HAVE WON

SMITH - RYAN

BOAT AND ENGINE CO.

ALGONAC

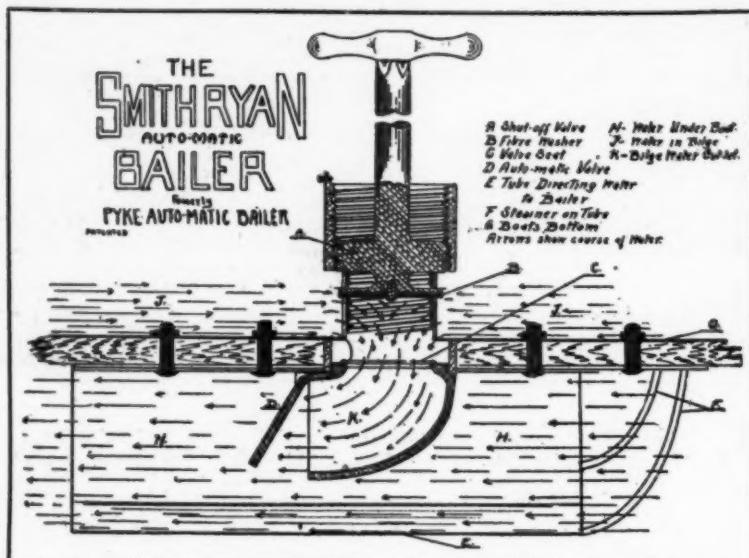
MICHIGAN.

DEPARTMENT B

Don't Break Your Back Pumping

**Let the
SMITH-RYAN
AUTOMATIC
BAILER
Do Your Work**

Write for Circular

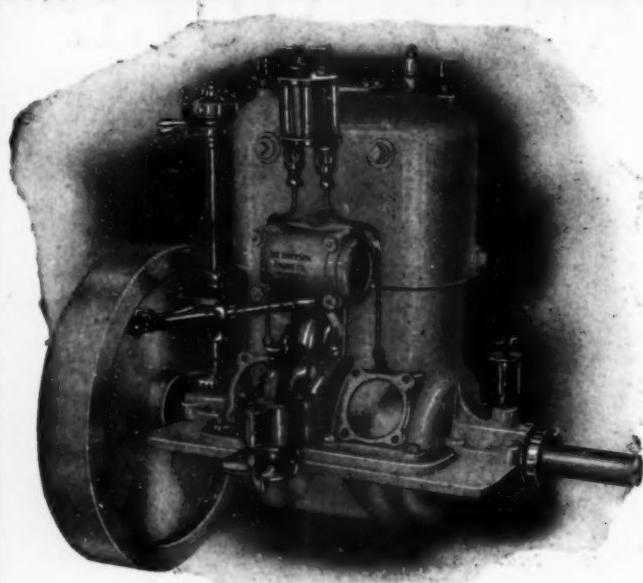


**Boat Always
Dry**
Price, \$4.50
Each
Used on
Reliance Speed
Marvels

AGENTS WANTED

SMITH-RYAN BOAT & ENGINE CO.

Dept. B **ALGONAC, MICH.**



\$ 200

1913 MODEL

20 H. P.

EMBODYING EVERY IMPROVEMENT KNOWN IN
ENGINE BUILDING AND HAVING THE FIT AND FINISH
THAT HAS MADE THE EMERSON ENGINE FAMOUS.

Write for Catalog B and List of Satisfied Users

EMERSON ENGINE CO., Alexandria, Va.
Catalog "S" for Speed. Catalog "C" for Cruisers

Make Your Old Engine Like New—

Make Your New Engine Doubly Efficient

by fitting it with



PISTON HEAD PACKING RINGS

PATENTED

LEAK-PROOF Piston Rings add power and efficiency to every motor, old or new, marine, stationary or automobile, on which they are used. Tens of thousands are now in service, and our factory is kept working at full capacity to supply the ever growing demand. We mention this fact merely to prove that LEAK-PROOF Rings have made good in extensive service and therefore merit your attention in order that you may enjoy the same benefits others have found.

LEAK-PROOF Piston Rings are an advanced design which is superior to any other type of ring manufactured. Perfect compression without leakage of gas past the piston is insured from first to last.

Their elasticity is uniformly distributed so they are equally compression tight at all points, wear slowly and uniformly, prevent uneven wear of cylinders and enable the motor to retain its original power after years of service. Carbonization of cylinders is greatly decreased because excess oil cannot work up into the combustion chamber.

The ordinary piston ring design is the most undeveloped feature of the present day highly perfected marine motor. LEAK-PROOF Rings transform this feature from the lowest point of inefficiency to the highest degree of efficiency. They enable the motor to give more power on less fuel than is otherwise possible.

When you overhaul your motor this year, install LEAK-PROOF Piston Rings. Write today for prices, giving name, type and horsepower of your motor and number and bore of cylinders, width and depth of groove and number of rings per piston.

Sold by Supply Houses and Repair Men Everywhere

McQuay-Norris Mfg. Co.
1316 [Chestnut Street. St. Louis, Mo.

BRANCH OFFICES:

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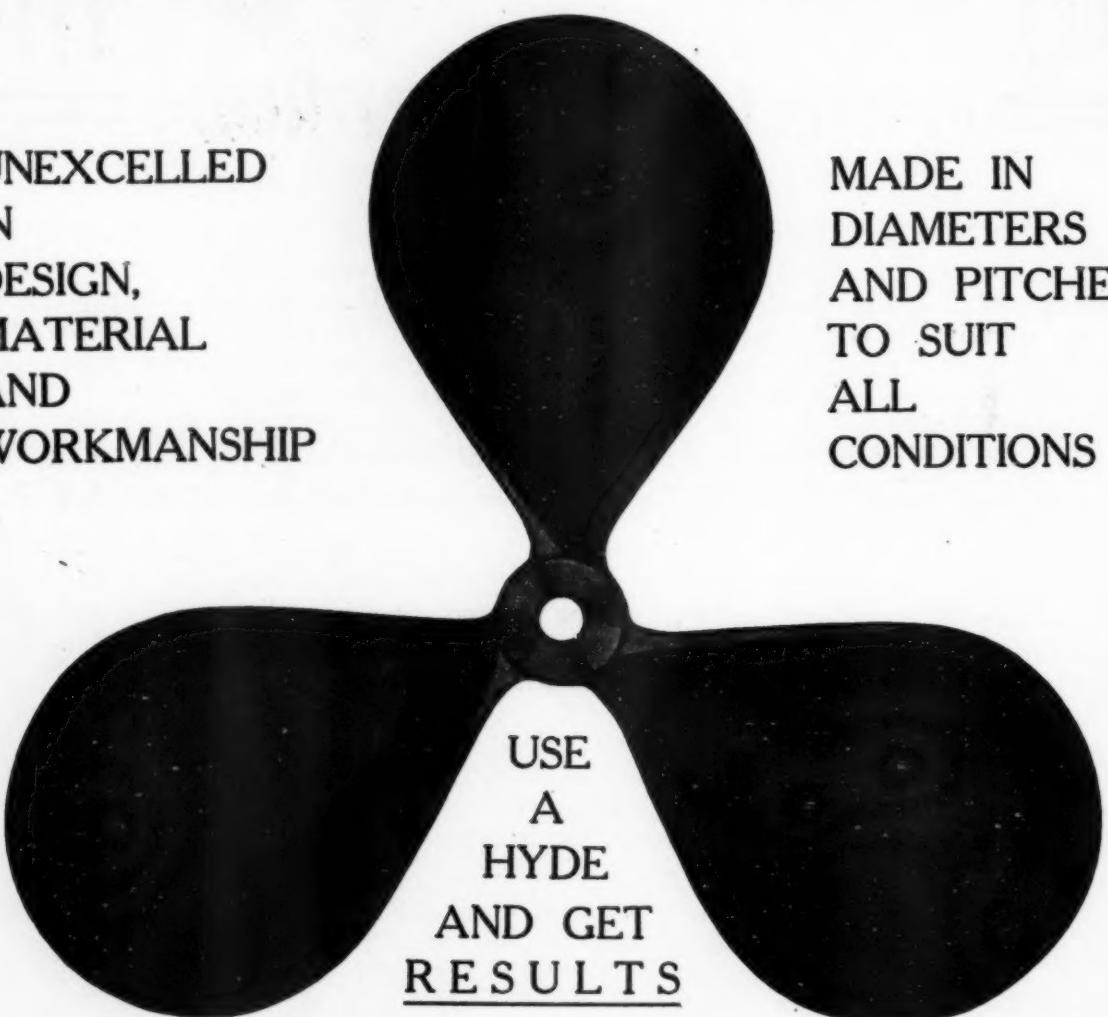
HYDE

TURBINE TYPE PROPELLERS

THE MOST EFFICIENT PROPELLERS FOR SPEED, PLEASURE & COMMERCIAL BOATS

UNEXCELLED
IN
DESIGN,
MATERIAL
AND
WORKMANSHIP

MADE IN
DIAMETERS
AND PITCHES
TO SUIT
ALL
CONDITIONS



USE
A
HYDE
AND GET
RESULTS

EQUIP YOUR MOTOR
BOAT WITH THE **Irish Pneumatic Clutch Control**
THE LATEST AND BEST METHOD OF CONTROLLING THE ENGINE FROM THE STEERING STAND OR STATION

HYDE WINDLASS CO.
BATH, ME.



Absolute Protection Against Drowning



AFFORDED BY
The Neversink Coat

The Most Remarkable Garment Ever Manufactured



A REAL NORFOLK COAT

soft, light and comfortable, easy and durable, which fulfills every requirement of the ordinary coat. You can work, row or hunt in it as well as in any other coat but you cannot drown!

Because of its warmth and comfort, the "Neversink Coat" is especially valuable when yachting, motor-boating, fishing and canoeing. It is made of a special fibrous material as soft and pliable as down, which has four times the buoyancy of cork.

In Exhaustive Tests the "Neversink Coat" sustained a weight of 21 pounds in fresh water for six days. In view of the fact that a man weighs in the water approximately $2\frac{1}{2}$ pounds you can readily appreciate the wonderful buoyancy of these garments.

Every Man, Woman or Child who Ventures on the Water Should Wear

The Neversink Coat

Without It They Are Risking Their Lives Needlessly

TESTIMONIALS

BURGESS COMPANY & CURTIS
Marblehead, Mass., January 27, 1913.
AMERICAN LIFE-SAVING GARMENT CO.
53 State St., Boston, Mass.

Gentlemen:
We are very glad indeed to advise you of the satisfaction which we have experienced in the use of the Neversink coats.

Our aviators and passengers have used them constantly during the last season in hydro-aeroplane flying and have found them comfortable to wear, warm, and of neat appearance.

We heartily recommend their use in all speed sport on or over the water. While we are glad to say that we never have had occasion to put them to a test in our actual flying, still a number of times the boys have jumped into deep water with them and find that they sustain their weight perfectly without any deterioration either from length of time in the water or period of service.

Yours truly,
BURGESS COMPANY AND CURTIS.
F. H. RUSSELL, Manager.

WRIGHT & DITSON 344 Washington Street
Boston, Mass., July 11, 1912.
AMERICAN LIFE-SAVING GARMENT CO.
53 State St., Boston, Mass.

Gentlemen:
I am writing to tell you that without doubt your coat saved my life last Saturday when my boat sank off Marblehead, Mass., during a squall, and indirectly saved the fellows with me, as it enabled me to get their trousers and shoes off. We were in the water 20 minutes before help came and I, personally, cannot keep above water ten minutes under the best conditions so you see the coat came in very nicely. Under the circumstances, I feel that it is my duty to write you this letter.
Yours very truly, IRVING C. WRIGHT.

S. Y. "VANADIS"
City Id., N. Y., Aug. 13th, 1912.
AMERICAN LIFE-SAVING GARMENT
COMPANY.
53 State St., Boston.

Dear Sirs:
We have at present 4 of your life-saving jackets on board for use in our speed launch, supplied by Geo. Lawley & Son, Ltd., Neponset. I have tested every one of these and find them satisfactory and would like you to send me 12 (twelve) more as soon as possible to the S. Yacht Vanadis, at the above address.

Please send bill to C. K. G. Billings, Esq.,
54 Wall Street, New York, and oblige.

Yours truly,
THOMAS FARRINGTON, Master.



The Neversink Waistcoat

Posesses the same floating power as the coat and may be worn under an ordinary coat. Write today for further information regarding these wonderful garments. Dealers desiring exclusive territory write immediately.

Our Guarantee—Satisfaction absolutely guaranteed or your money back.
Your satisfaction means our success.

AMERICAN LIFE SAVING GARMENT CO.
57 State Street, Boston, Mass.

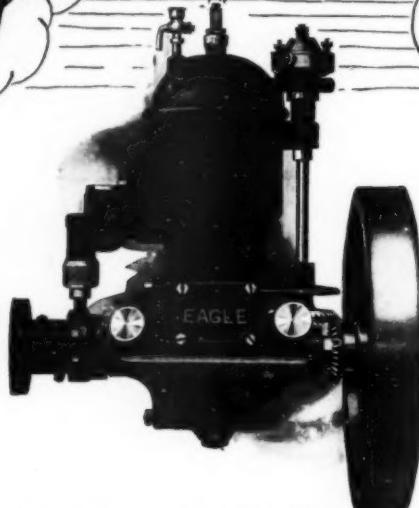
THE FLIGHT OF



3½ H. P.—Model K

Completely equipped with Excelsior float feed marine carburetor, with option of Schebler carburetor, "Black Eagle" Spark Plug, roller contact timer, bronze plunger pump with self-contained check valves, priming cup, grease cups, ball thrust bearings, flange coupling, "Eagle" water cooled exhaust silencer, wrenches, screw-driver, can of cylinder oil, can of grease, two oil-cans, lag screws and instruction book.

**Price as
Described \$50.00**



1913 Model "1K" 3½ H. P. "Eagle" Engine

AN "EAGLE" YEAR

WE have taken ample time to develop and train this classy line of "Eagles" so the 1913 flight will be not only swift but one of endurance as well. Now is the time to prepare for the 1913 harvest, and a harvest there is going to be to the dealer who is wise enough to talk "Eagles" to his customers. Every dealer and every boat builder can buy an "Eagle" Engine at the same price; we do not limit their sale by allowing anyone the exclusive right of territory; our distributors will deliver to you or you can order direct; it's an open selling proposition with a uniform price to all, a square deal in every sense.

Mr. Dealer and Mr. Boat Builder, *there is money in selling Marine Engines*, but most of you have tried to sell engines that were not sufficiently well known. How can you ever expect to make money in the Marine Engine business unless you associate yourself with a big live organization? How can you expect to make money on Marine Engines when you confine yourself to a line with few sizes and perhaps only one style? How can you ever expect to make money selling Marine Engines unless the Manufacturer from whom you are obliged

to purchase has ample resources to carry a complete stock ready to ship promptly upon receipt of order? More harm has resulted to the Dealer and Builder owing to delayed shipments than from any other single cause.

It's an easy task to sell two engines where only one was sold before, provided you select the right engine.

"Eagle" Engines should be your selection for 1913. Viewed strictly from a business standpoint you cannot find among the manufacturers of Marine Engines a line of engines so complete as our 1913 Line of "Eagles": Just stop and consider that we offer nineteen (19) different models, covering the entire field of two-cycle construction! You can find in this line an engine for any type of boat and for every requirement where a two-cycle engine can be used.

It might be well for you to view the "Eagle" product from a permanent selling standpoint. There is no field of manufacture that we know of which has attracted so many unreliable and insufficiently financed companies as the engine business. They have come and gone, and today we look at this business as a survival of the fittest. "Eagle" Engines have been manu-

**STANDARD CO. TORRINGTON,
CONN.**

1913 EAGLES



1913 Model "2K" 7 H. P. Eagle Engine

7 H. P.—Model 2K

Completely equipped with Excelsior float feed marine carburetor, with option of Schebler carburetor, "Black Eagle" spark plugs, roller contact timer, bronze plunger pump with self-contained check valves, priming cup, grease cups, ball thrust bearings, flange coupling, "Eagle" water cooled exhaust silencer, wrenches, screwdriver, can of cylinder oil, can of grease, two oil-cans, lag screws and instruction book.

Price as Described \$95.00

factured and sold for thirteen years through the same general management. No user of an "Eagle" Engine has ever been obliged to discard his engine due to his not being able to secure necessary parts. We are prepared to care for all styles of "Eagle" Engines manufactured and sold during the past thirteen years.

You will find in our 1913 line an entire new and up-to-date line of high-speed engines at attractive prices. Our standard line of medium and heavy-duty models covers the entire field of use where marine engines are desired for working and fishing boats. You are not obliged to pay any more money for an

"Eagle" Engine during 1913 than you are for less efficient ones.

Start this year right; build your business for the future. There is no profit for you if you are obliged to change your source of supply on engines each year. Our most desirable and prosperous dealers are those who have sold "Eagle" Engines for periods of six to twelve years. They have made money in following this policy, and we see no reason why any live and enthusiastic dealer or builder cannot do the same.

Remember, you are not asked to pay a premium for "Eagle" quality for 1913. You will find our prices as low and the equipment better than on any line of standard-made engines.

DISTRIBUTORS

Baltimore, Md.,	Unger & Mahon,	119 E. York St.	San Diego, Cal.,	Bay Region Machine Works,	240 D St.
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STANDARD CO. TORRINGTON, CONN.

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MOTOR
BOATING

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LINE of QUALITY

Manufactured for 16 years

THE TWO CYCLE MOTORS THAT PRODUCE RESULTS

ERD MOTORS have driven and are now driving boats of well known design faster than any motors yet produced.

If results count, note a few actual records made with ERD equipped boats.

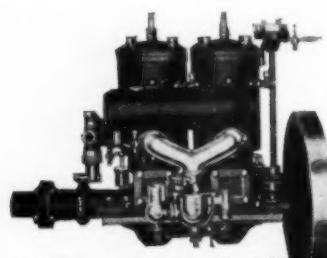


17 Ft. Hacker Hydroplane which made 22 miles per hr. with a 12 H.P. Standard ERD and 30 miles with a 30 ERD Special.



"Squake," a Hand V Bottom Runabout, equipped with a 10 H.P. "ERD" Standard Type Motor. Speed over 17 miles per hour.

- 10 H.P. Standard. Made 20 actual m.p.h. in a Curtis Hydroplane.
- 10 H.P. Standard. Made better than 17 m.p.h. in a Hand 17 Ft. Runabout.
- 12 H.P. Standard. Made 22 actual m.p.h. in a 17 Ft. Hacker Hydroplane.
- 15 H.P. Standard. Made 22 m.p.h. in a Hand 22 Ft. Runabout.
- 15 H.P. Standard. Made 25 m.p.h. in 17 Ft. Hacker Hydroplane.
- 30 H.P. Featherweight. Made 28 m.p.h. with Viper 20 Ft. Boat.
- 30 H.P. Featherweight. Made 30 m.p.h. with 17 Ft. Hydroplane.



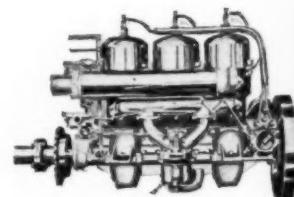
10 H.P. 2 Cyl. Standard

Made from 3½ to 60 H.P.

If You Want Comfort and Speed. Look first to an engine that is Faultless in Design and Construction.

Look Next to the Records they have made in boats of all descriptions.

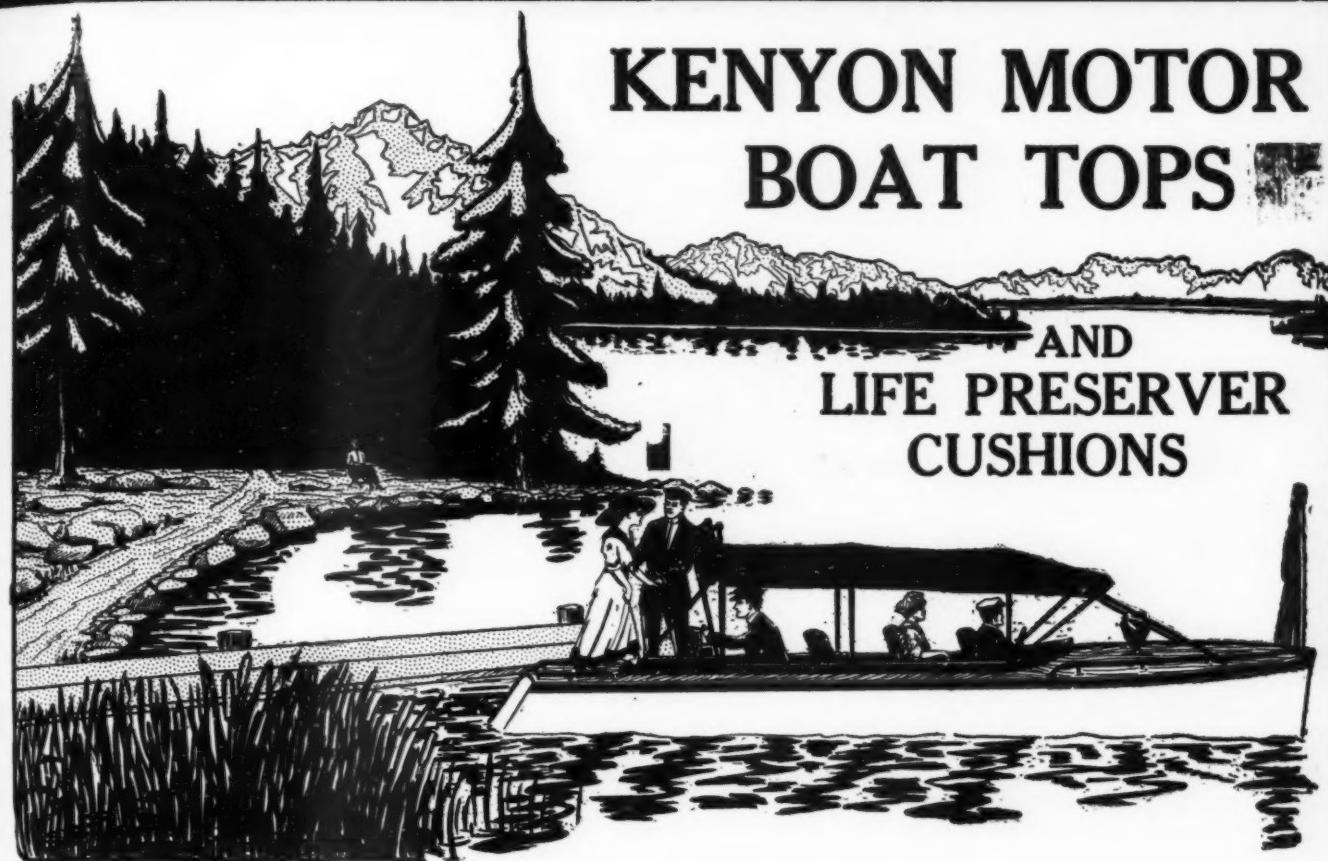
Look then for a Motor that will be Dependable and Give you Years of Service, one that will start easily, will control perfectly. If you are looking for all these things, Investigate the ERD.



30 H.P. Erd Special
Featherweight

SEND FOR 1913 CATALOGUE

ERD MOTOR CO., Saginaw, Mich., U. S. A.



KENYON MOTOR BOAT TOPS

AND
LIFE PRESERVER
CUSHIONS

YOUR MOTOR BOAT A FLOATING PALACE

¶ Just as soon as the ice breaks up in the spring, and you begin to feel that old longing for the steady chug, chug of the motor—the ripple of waters and the dash of spray—remember this—

¶ You will not be supremely comfortable in body or in mind, in your boat, without

guaranteed protection from the sun and storms above or a watery grave beneath.

¶ You can make your motor boat as cozy and comfortable as your smoking den—you can feel absolutely safe in case of accident, if you will equip it with

A KENYON TOP AND LIFE PRESERVER CUSHIONS

¶ Briefly, the Kenyon Top can be described as follows:—Successfully manufactured for six years—listed in the catalogs of most every boat builder in the country—specified by Uncle Sam for Government motor boats—and recommended by several thousand enthusiastic motor boat owners.

¶ Kenyon Life Preserver Cushions and Pillows are accepted by Government inspectors as real life preservers. They are soft and resilient—can be tailored to fit your boat or cruiser seat exactly—and will not only give you the positive assurance of safety always but will make your motor boat a veritable floating palace for comfort.

¶ A beautiful catalog, which describes the whole line of motor boat equipment, is yours for the asking. Send for it today.

THE R. L. KENYON COMPANY
361 Meadow Street Waukesha, Wis.

CLIP THIS COUPON
THE R. L. KENYON COMPANY,
361 Meadow Street, Waukesha, Wis.
Please send me your new catalogues
Boat Tops and Life
Preserver Cushions.
Name.....
Address.....

Ask for a copy of
"A Book of Boats"

A New Gray Service for
Boat Builders and Pros-
pective Boat Buyers,
Full Details on Request



Everyone Can Enjoy This Glorious Sport

Write and get full details of our splendid 30 foot pleasure boat. Wide beamed, comfortable and safe, mahogany finish, Automobile Control. Will carry 15 people. With one of our 36 H. P. Model "T" motors will make from 18 to 20 miles per hour.

The complete outfit equipped with a 36 H. P. Gray Motor can be furnished by most any good boat builder for approximately \$750,

built from our design which we furnish free if a Gray Motor is installed, or if you have no local boat builder we can sell you the outfit at that price or put you in touch with some good boat builder who will.

Our boat builder's catalog which will contain information about boats of all types and sizes will be of great value to all prospective boat owners.

GRAY MOTORS FOR BOATS	
all sizes up to 36 H. P.	
3	H. P., guaranteed to develop 4 H.P. Complete outfit . . . \$55
6	H. P., guaranteed to develop 7 H.P. Complete outfit . . . \$89.50
12	H. P. A powerful two cylinder motor that will develop 13 to 16 H.P. Price for complete outfit . . . \$164
MODEL "T"	
Kerosene or Gasoline	
Made in 1, 2 and 3 cylinders, 7 to 36 H.P. Price with complete outfit \$115 and up.	
Write for Big Engine Book "M"	

Boat Buyers and Boat Builders Service

We want every man who is in the market for a boat or an engine to have full details of the new Gray boat buyers' service. Boat builders' catalog will be issued—different types and sizes of boats made by builders in all parts of the country will be illustrated and described—lines of various boats will be furnished free where a Gray Motor is installed.

This service is intended to tell the boat buyer exactly where to get exactly what he wants. The service will be very extensive—it will cover all sections—it is one of the most important steps ever taken in the engine building and boat building business. If you want to get the benefit of this new and valuable service, write us today—ask for a copy of Engine Book "M."

Gray Motor Company
374 Gray Motor Bldg., Detroit, Mich.



18 Ft. Family Launch

An ideal outfit for the man wanting a comfortable, roomy, open launch. Well built, substantial and safe. 4 ft. 4 in. beam. Will carry 8 people with comfort, 10 to 12 with safety. We can put you in touch with a boat builder who will furnish this outfit, or we will sell it to you direct.

COMPLETE
with 3 H.P. Gray Motor
\$142.50

Polarine

The Best Oil for All Motors

Reduces friction and wear. Gives the highest degree of service. Flows freely at Zero temperature, and will not congeal in the crank case nor clog in feed pipes.

For sale everywhere. Barrels and half-barrels; five and one-gallon lithographed cans.

Where To Get Gasoline

SUPPLY STATIONS WHERE POWER BOATS CAN LOAD DIRECT FROM OUR TANKS

NEW YORK CITY.

Foot East 120th Street
Foot West 141st St., North River
Clason Point

STATEN ISLAND.

Port Richmond, Tottenville, Princess Bay Stapleton, Schooner "Lawrence," Great Kills

BROOKLYN.

Foot No. 10th St. Foot No. 12th St.
Bond and First Sts.
Gravesend Beach (A. L. Anderson)
Sea Gate (Atlantic Yacht Club)

NEW YORK STATE. LONG ISLAND SOUND.

City Island (Robt. Jacob) Portchester
Mamaroneck, N. Y. New Rochelle
City Island (The Roeder Ice & Coal
City Island (A. Duryea) Co.)

LONG ISLAND.

Greenport, Northport, Bayville
(Henry Steers)
Port Eaton (Henry Steers)
Patchogue (W. R. Marran)
Glenwood Landing, Montauk
(Capt. E. B. Tuthill)
College Point Cold Spring Harbor
Oyster Bay
(Oyster Bay Canal & Dock Co.)
Port Washington
(Manhasset Bay Yacht Club)
Port Washington (E. J. Klein)
Sag Harbor (Jno. Murphy)
Huntington Harbor (J. S. Ott)
Canarsie (Perry Horton)
Rockaway Point (P. H. Reid)
Port Jefferson (O. T. Fanning)
Babylon (W. E. Magee)
Fisher's Island (A. H. Eldredge)

HUDSON RIVER.

Tarrytown Boat Club { Tarrytown
Tarrytown Yacht Club } Nyack
S. O. Co. of New York { Newburgh
Corinthian Yacht Club } Yonkers
Catskill Hudson Albany
Poughkeepsie Yacht Club, Poughkeepsie

ERIE CANAL.

Rome Utica Syracuse
Rochester Middleport Lockport
Schenectady Buffalo Medina
Tonawanda Albion Brockport

LAKE ERIE.

Buffalo Dunkirk
NIAGARA RIVER.

Buffalo (Foot Erie St.)
Buffalo (Foot Porter Ave.)
Grand Island (at Buffalo end of Ferry
Floss's Dock)

Tonawanda No. Tonawanda

LAKE ONTARIO.

Carlton Summerville Newport
Sodus Point Point Pleasant Charlotte
Sea Breeze Manitou Beach Oswego

ST. LAWRENCE RIVER.

Cape Vincent Clayton Ogdensburg

LAKE GEORGE AND ADIRONDACKS.

Caldwell The Hague Lake George
Saranac Lake Lake Placid

LAKE CHAMPLAIN.

Plattsburgh Rouses Point Whitehall
Westport Ticonderoga Burlington, Vt.

CONNECTICUT.

Greenwich Stamford Noank
Bridgeport New Haven Mystic
New London Cos Cob Stratford
Stonington Rowayton Stony Creek
South Norwalk

RHODE ISLAND.

Newport Narragansett Pier
Wickford East Greenwich
Warren Providence
Pawtuxet Bristol Block Island

MASSACHUSETTS.

New Bedford Hyannis
Fall River Dorchester
Kingston Newburyport
Provincetown East Boston
Buzzards Bay Gloucester

NEW HAMPSHIRE.

Portsmouth

MAINE.

Portland Bath Kennebunkport
Belfast Rockland Eastport
Boothbay Harbor

On the St. Lawrence River our own launches make deliveries to storage tanks at Summer homes along the River. Headquarters of Launches at Clayton, N. Y.

Standard Oil Company of New York



Triplex

Finishes the Work the
Carburetor Leaves Half Done

Economizes
Fuel

Triplex

Increases
Mileage

Triplex

Promotes
Flexibility

Triplex

Prevents
Back
Firing

Triplex

Is
Guaranteed
to Decrease
Fuel
Consumption
25%

**Try this 60 Days at Our Risk
Saves 25% on Gasolene**

PREVENTS CARBON—Makes the Motor Run Smoother

TRIPLEX will do more to save expense and abolish engine trouble for you than anything you can buy. Put it on your motor, between the flanges of carburetor and intake pipe. It will positively save you 25% on your gasoline bills, give you more power and engine speed, prevent carbonization, abolish carburetor and mixer troubles and make your engine run smoother at all times. No matter what size or type of engine you use, you need a TRIPLEX for economy and satisfaction.

**Triplex Makes Imperfect Carburetion
Absolutely Impossible**

Triplex Prevents Back-Firing

It is impossible for flame to back-fire through the intake and ignite the gasoline in the carburetor or set fire to the boat. TRIPLEX arrests the flames on the same principle as the non-explosive feature of the miner's gauze lamp. TRIPLEX makes starting much easier as it vaporizes the gasoline when the motor is cold.

TRIPLEX simply breaks up the gasoline spray as it comes from the carburetor so it mixes readily with air. When the mixture reaches the cylinders it is a perfect chemically combined gas of highest explosive power, instead of a wet spray of gasoline drops and air. This is the difference between perfect combustion and the other kind that causes carbon, smoke, odors, overheating, loss of compression and nine-tenths of your other motor troubles.

Demonstrate for Yourself the Truth of Our Claims

If all the above statements are true you can't afford to run your motor a single day without a TRIPLEX. We make it easy for you to prove our claims to your own satisfaction, at our risk. Try TRIPLEX 60 days: then if you are not convinced, we will refund purchase price cheerfully. TRIPLEX will save enough on fuel to pay for itself in that time. In other words, TRIPLEX costs you nothing: we get our pay out of what it saves you—what you would otherwise spend for fuel.

If your dealer doesn't sell TRIPLEX we will send direct on receipt of price. Don't accept substitutes. Write us today.

1 inch.....	\$3.50
1 1/4 inch.....	4.00
1 1/2 inch.....	4.50
1 3/4 inch.....	5.00
2 inch.....	5.50
2 1/2 inch.....	6.00

**Bremer - Wilson Manufacturing Co.
1475 Michigan Blvd. CHICAGO, ILL.**

Western Representatives: Austermell & Hanson, 560 Pheasant Bldg., San Francisco, Cal. Dealers: TRIPLEX is the fastest seller on the market. You can't afford to let your competitor get all the profits. Write or wire us today. Big sales and big profits.



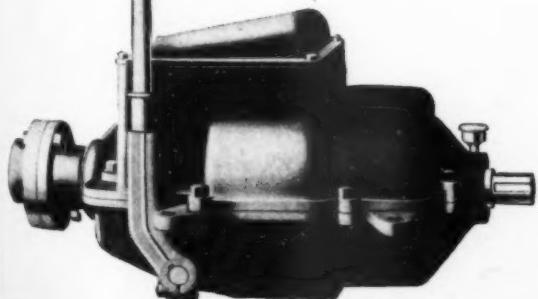
No man with eyes wide open can fail to appreciate these fine points of "Baldridge" construction

They appeal to his appreciation of a gear built on common-sense principles

REMEMBER this important fact about the "Baldridge"—it is the gear with the unbroken main shaft. To understand the superiority of this construction; suppose you look at the principle of the old-style gear. There you have a revolving shaft with each end resting in a bearing. The shaft is divided at the center where it carries a heavy load, (the clutch, etc.) As the bearings wear (and they will) the poorly-supported load at the center begins to sag and revolve with an eccentric motion.

This out-of-true motion causes further wear which causes more sagging and then you have the beginning of no end of trouble from heating, binding and destructive wear of bearings.

"The gear with the unbroken main shaft"



These troubles cannot happen to a "Baldridge." The main shaft is solid, unbroken. It is supported by the propeller-end bearing and extends far enough forward to rest securely in the engine-end bearing. The shaft cannot possibly get out of alignment. Just how we get the reverse motion is clearly told in our BOOKLET. Write for it.

In the booklet it is explained how the ingenious construction of the clutch and reverse band allows the gear to "idle" perfectly when the control handle is in "neutral" position.

The "Baldridge" is fully enclosed—no moving parts that can sling oil, or catch your clothing. Lubrication is practically automatic. Its neat, compact design is really pleasing.

But write for the Baldridge Book that explains all in detail. Contains helpful talks on motor-boating in general.

If you are in the boat business, write for our dealer's proposition. Some good territory still open.



Did you ever think of motor-boating in just this way?

Outside of a little fussing with the engine no one ever anticipates any trouble on a cruise. But danger is always close ahead—too close, in fact—for the man who neglects to put in a reliable reverse gear.

When the other fellow's boat is right on you, or when a rock or snag shows up just ahead, or when you are due for a "smash-up" against the dock—then you haven't time to stop your engine and reverse. You must take the consequences.

Play safe! Get a "Baldridge." It eliminates hazardous guesswork by giving you automobile control. The BOOK tells how. Send for it.

The Baldridge Gear Company
678 West Grand Boulevard
Detroit, Michigan

Export Office: 47 Broadway, New York City, U. S. A.

Handled in Canada by The Canadian Fairbanks-Morse Company, Ltd.

When writing to advertisers please mention MOTOR BOATING, the National Magazine of Motor Boating.

"SANDS" MARINE SANITARY FIXTURES

Four of Our New Standard Pump Water Closets That Will Satisfy Particular Buyers

This Closet has a five inch pump, supply controlled by grip on handle. Write us regarding others of this type.



"HURON." PLATE S-2035.
(Patented—Copyrighted.)

The "Huron" Pump Water Closet has new style extra heavy Vitreous Adamant flushing rim hopper bowl. Five (5) inch combined supply and waste pump having four (4) inch cylinder.

Complete with mahogany seat and cover. Pump white enameled, N. P. trimmings \$132.50

We sell Pump Water Closets having 2½" pumps as low as \$25.00 fully guaranteed. Write us about them.



"FLORIDA." PLATE S-2015.
(Patented—Copyrighted.)

The "Florida" Pump Water Closet has new style extra heavy oval pedestal Vitreous Adamant bowl. Improved supply and waste pump having four (4) inch cylinder.

Complete with Mahogany seat and cover. Pump white enameled, N. P. trimmings \$112.50

For other Closets having 3 and 4 inch pump, see our Catalog "R" illustrating large variety.



"IOWA." PLATE S-2040.
(Patented—Copyrighted.)

The "Iowa" Pump Water Closet has latest style Vitreous Adamant extra heavy oval flushing rim, straight back hopper bowl, fitted with 4 in. supply and waste pump.

Price with quartered oak, cabinet finish seat and cover, pump rough with polished trimmings \$35.00

Are you acquainted with the "Bow" Closet? Fits the "Eyes" of small boats. Write us for particulars.



"IMPROVED MOHAWK." PLATE S-2030.
(Patented—Copyrighted.)

The "Improved Mohawk" Pump Water Closet, extra heavy Vitreous Adamant oval flushing rim hopper bowl. Composition supply and waste pump three (3) inch cylinders.

Pump rough with polished trimmings, oak seat and cover \$70.00

A Few of Our Many High Grade Specialties for Motor Boats



PLATE S-151.

The "Roslyn" Folding Lavatory, with tumbler rack; N. P. copper lining; N. P. Copper combined round basin and slab; N. P. copper soap and brush holders; N. P. brass pump with combination brass swing supply faucet.

... in Two sizes No. 1., No. 2
Quarted osm. polish finish \$37.50 \$42.50
Mahogany, polish finish ... 39.00 44.50
Height 19½" 22"
Width 15" 17"
Depth, open 10½" 19"
Diameter of basin 10" 12"



PLATE S-776.

Brass Gasoline Pump, rosewood handle, polished faucet, special valves, 2-inch cylinder.

Rough N. P. all over. 10.50

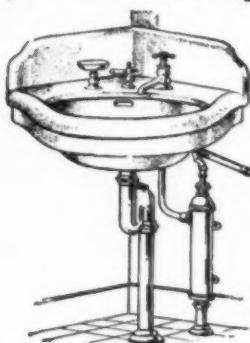


PLATE S-209A.

The "Martius" Vitreous Adamant Corner Lavatory, N. P. brass supply faucet, soap dish, "Ree" pop-up waste, plug-stopper, chain, N. P. brass fall "S" trap, N. P. brass pump to fasten against bulkhead with supply pipe.

Complete as shown \$35.00



PLATE S-702.

Polished Brass Basin Pump, 1½" diameter cylinder, hardwood handle.

Polished Brass \$10.50
Polished and N. P. 12.50



PLATE S-136.

The "Arcos" Folding Lavatory, N. P. copper lining, combined round basin and slab, N. P. composition pump, combination swing supply faucet, N. P. brass waste and supply couplings, oak case. Complete \$35.00

Height over all, 19½ inches; width, 15 inches; depth closed, 5½ inches; depth open, 16½ inches; basin, 10 inches.



PLATE S-1255.

Motor Boat Signal Two-Tone Horn with mouthpiece. Fulfils the U. S. Government requirements as signaling device for small boats. Highly-polished brass and nickel-plated. Length 10½ inches.

Style "A"—Arranged with rings for fastening cord. German Silver mouth-piece.

Polished Brass \$2.25
Style "B"—Arranged with bracket to screw to deck; blown through Removable Extension tube.

Polished Brass \$2.25
Mohair-Covered Rubber Extension Tube, length 3 feet, with Mouth-piece and connection to horn. \$0.75



PLATE S-750.

Double Acting Brass Auto Bilge Pump, 15 inches long under spout and fitted with 5 feet of rubber hose.
No. 1—Chamber 1½-in. diameter \$3.00
No. 2—Chamber 1½-in. diameter \$4.50
No. 3—Chamber 1½-in. diameter, 24 in. long, with foot rest \$5.50



PLATE S-126.

The "Génora" Composition Flange and Coupling for use on supply and discharge pipe of closets, straight or bent coupling.
¾ in. \$2.25
1 in. 3.00
1½ in. 5.25
2 in. 8.00
Composition raised strainer for supply \$2.00 extra.

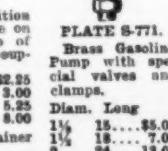


PLATE S-771.

Brass Gasoline Pump with special valves and clamps.
Diam. Long 1½" 18" \$5.00
1½" 18" 7.00
2" 24" 12.00



PLATE S-235.

The "Ramo" Vitreous China Lavatory with "Sanos" patent overflow, N. P. brass stay with rubber stopper.
Complete as described \$6.25
N. P. Compression Faucets, each, 1.50
N. P. cock hole cover, each .40
Smallest basin made, Length on sides, 12 in., basin, 10 in.



PLATE S-1010.

Glass Deck Light with brass rim, no hinge.
Diam. of Glass

2½ in. \$7.75
3 in. .90
3½ in. 1.00
4 in. 1.50

Round Flange Composition Monitor Air Ports.

All Cast Bronze and hinge to give sufficient rigidity to prevent breaking

Connection, Inlet springing and breaking
Strainer and Scoop. Diam. of
Size Iron Lead Pipe. 4 in. Plain \$4.00
½ in. \$2.25 \$2.65 5 in. 5.25
¾ in. 2.50 2.90 7 in. 7.00
1 in. 3.00 3.40 8 in. 8.75
10 in. 10.75



PLATE S-1002.

Complete line of closets, lavatories, port lights, deck plates, basin and galley pumps described in Catalogue "R" sent upon request.

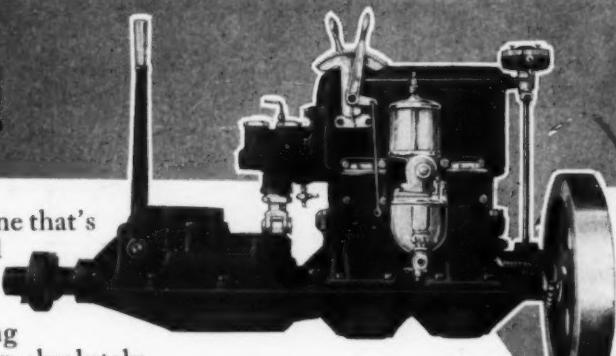
A. B. SANDS & SON COMPANY

Largest Manufacturers in the World MARINE PLUMBING SPECIALTIES 22-24 Vesey St., New York, U. S. A.

1849—"SIXTY-FOUR YEARS OF QUALITY"—1913

Here's The Engine For The Man Who Runs His Own Launch

HERE'S the marine engine that's designed to be operated by inexperienced hands. Every effort has been made to simplify its design. There's nothing complicated about it. We even build an absolutely water-proof ignition system to use in connection with this engine, thus avoiding ignition troubles. Engine is designed to run on either gasoline or kerosene.



Anyone Can Run the Caille Perfection

Your wife—your son—your daughter can run this engine successfully—safely and without being spattered with oil. It's entirely enclosed except the fly wheel. No oil can splash out—no water can splash in. One lever, conveniently located, gives complete control of engine at all times. More simple—more safe—more easily operated than an automobile engine. Always responds quickly—always willing—always ready. Often lends a tow—never needs one. It's the perfect engine for family use.

Why the Caille Perfection Engine Gives Such Good Service

In the first place, it is properly lubricated. One large sight feed lubricator perfectly oils cylinder walls, piston, piston pin and crank pin. It can also be lubricated by mixing one pint of lubricating oil with every five gallons of gasoline.

In the second place, while weight has been held down to a minimum, every part is made strong enough to withstand twice the strain to which it will ever be subjected. Although designed for pleasure boat use, this engine is often used in work boats to pull heavy loads. We continually get letters from customers stating their engines have run three to five years without a cent spent for repairs.

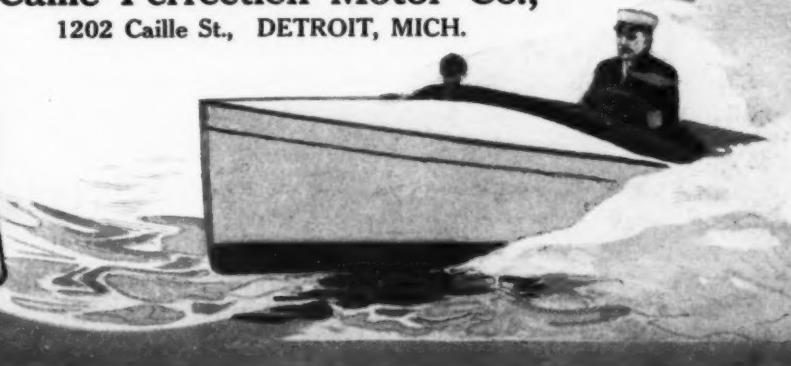
Where desired, we can fit this engine with rear starter and rear control so engine can be placed under front deck. We can also fit this engine with our Perfection Waterproof ignition system. Requires no batteries—no coils—no magneto.

Send for Beautiful Engine Book

We have one of the most beautiful engine books ever issued. We'll send it free to all who answer this ad. Describes our complete line of marine engines for all purposes. Beautifully illustrated. Send today—a postal will do.



Caille Perfection Motor Co.,
1202 Caille St., DETROIT, MICH.



**USE THIS BOAT
WHILE YOU'RE PAYING FOR IT
THAT IS THE MEANING OF OUR**

CONVENIENT EASY PAYMENT PLAN

REITER 1913 BOATS

YOU cannot be dissatisfied with these boats---because you have a chance to get thoroughly acquainted with them before they are paid for. We would not be safe in selling anything but a first class product on these most unusual terms.

The Reiter Models are the lowest price high grade motor-crafts on the market. These boats have the best material, workmanship, finish and equipment and are up-to-the-minute in design.



Our Binding Guarantee

This is to certify that the Reiter's Boat shipped this day to _____

is warranted in every respect exactly as represented in our catalogue.

We guarantee that this Boat has been carefully tested and adjusted according to instructions, that it will develop the full rated

horse power and more speed and power than is possible with any other type of motor. We guar-

antee this motor-boat to be made in a thoroughly work-

manlike manner, to be perfect in material and construc-

tion, and any part proving defective within one year from date of sale, and reported to the agent, will be replaced free of

charge. The damages to which we are liable are limited to the replacement of the defective parts. Boats are liable to derangement

from neglect or misuse. We do not guarantee against damages caused by abuse and neglect and ordinary wear. The motor is fully guaranteed.

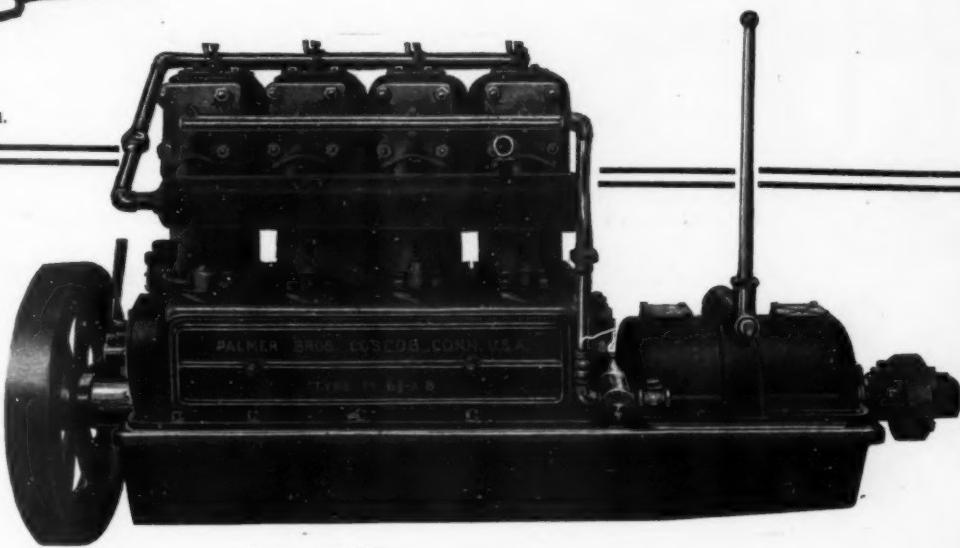
S. J. Reiter Boat Manufacturing Co.

3033-3059 Monroe Street, Toledo, Ohio

Trade Mark Registered.
U. S. Pat. Off.

1913 MODEL

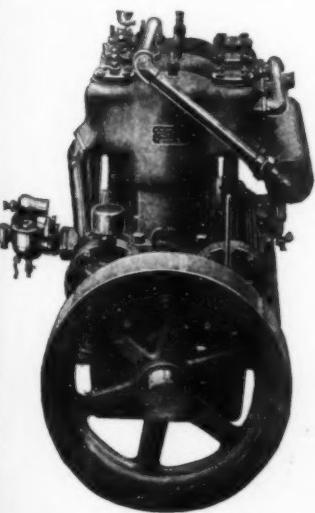
No. F 4
32 H O R S E
P O W E R , 4
C Y L I N D E R S ,
P R I C E A S
S H O W N , \$1100



PALMER MOTORS

1913 MODELS

1913 MODEL
No. NR 3
15 H O R S E
P O W E R , 3
C Y L I N D E R S ,
P R I C E A S
S H O W N , \$480



A manufacturer's enthusiasm for his product often leads him to advertise it as the "best on earth" when facts do not justify the statement. We have advertised Palmer Motors for many years without falling into that error, consequently we are weighing our words when we say:—

The 1913 Palmer Motor represents such a tremendous advance in the refinements of design and construction that it is today the best Marine Motor in the market.

We have achieved our ambition to build marine motors as compact and efficient as modern automobile engines. Our new models run silently, start smoothly and easily. Everything is enclosed and there is absolutely nothing to oil. The demand for them is already so pressing that we urge immediate placing of orders. Our new catalog is ready showing our full line of two and four cycle, 1 to 4 cylinders, 2 to 50 H. P. motors. Where shall we send it?

PALMER BROTHERS

DEPT. M - - - - - COS COB, CONN.

BRANCH OFFICES.

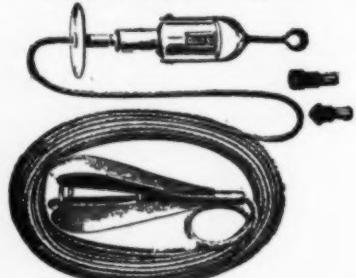
New York; 31 E. 21st St.
Philadelphia; 54 N. 6th St.
Boston; 77 Haverhill St.

Providence, R. I.; 123 Dyer St.
Portland, Me.; Portland Pier.
Baltimore, Md.; 126 Market Place.

DURKEE HARDWARE SUPPLIES

Our large stock includes every standard article and specialty in marine hardware and yacht supplies of all kinds. In quality, price and prompt service you will not find a more satisfactory firm to deal with than the house of Durkee.

Durkee's Combination Taffrail Log and Speed Counter



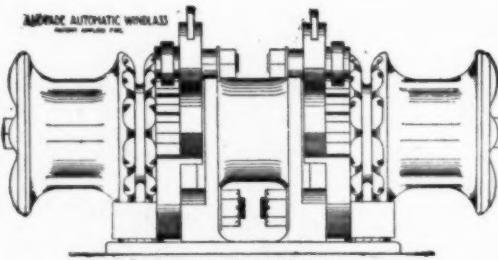
Shows correct speed of boat or revolutions of engine. Registers accurately at any speed. Most compact and accurate small log on the market. Rust proof. Always ready. No setting required.

Patterson Trap Ventilator



Affords perfect ventilation while it traps all rain and spray. Adjustable damper controls amount of air; can be closed entirely. Three sizes. Galvanized or Brass.

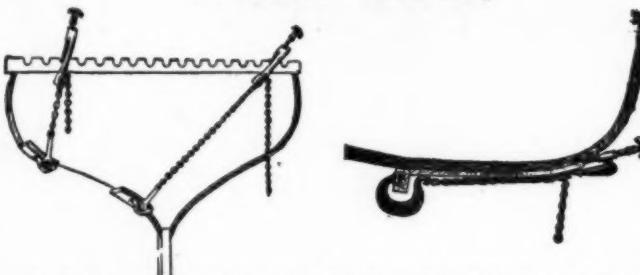
Andrade Automatic Windlass



BOW VIEW — CHAIN AND ROPE STYLE

First and only automatic windlass ever produced. It will heave in chain, pay out chain, or brake chain while paying out, by a simple motion of the handle bar. Only four moving parts—sheave, heaving ring and two pawls. One man can control two heavy anchors and chains completely without touching a hand to anything but the handle bar.

Boat Builders' Chain Clamp



Includes screw, chain, plank hook and keel hook. "Devil's Pull" and Planking Clip supplied extra. This is the best made and most convenient clamp of its kind made. Designed especially for boat work and needed by every boat builder. Warranted not to break with fair usage.

Reliable Fire Extinguisher

The latest, largest and best liquid fire extinguisher on the market for gasoline, oil, paint or electric fires. Especially adapted for motor boat and automobile use. Made in brass only. Does not freeze or deteriorate. Always ready for instant use.

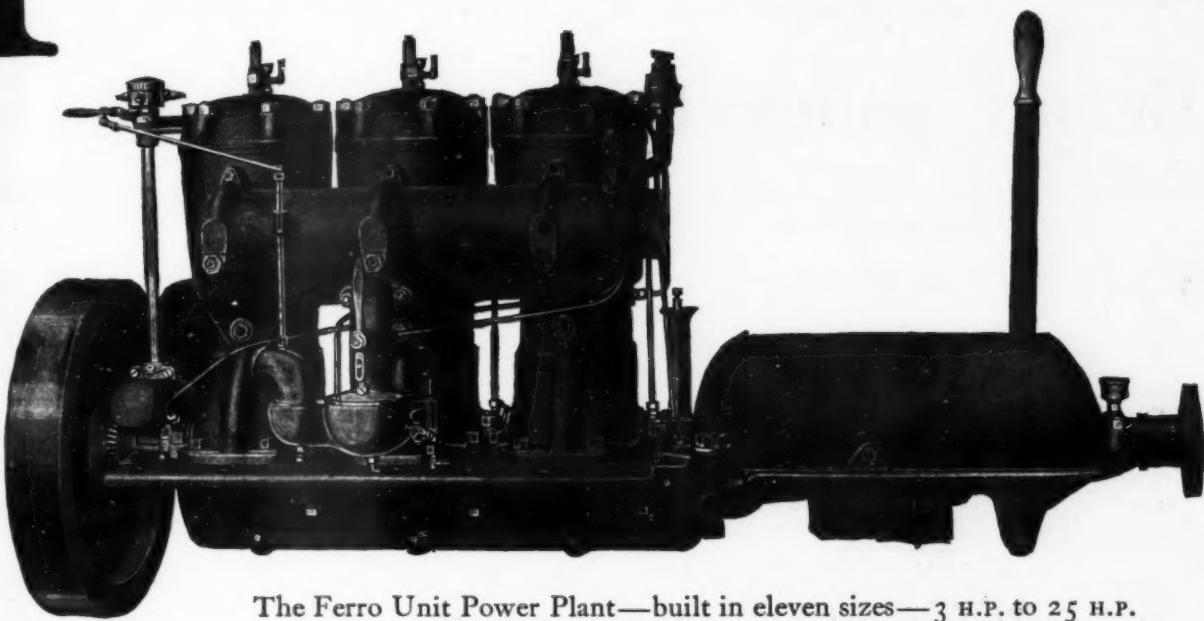
Send 25 cents in stamps for our mammoth catalog. Keep it on file—refer to it when you want information about marine goods of any kind. Write us for special information or advice on any subject in our line.

CHAS. D. DURKEE & CO.

2 and 3 SOUTH STREET
NEW YORK CITY

The World's Standard

FERRO



The Ferro Unit Power Plant—built in eleven sizes—3 H.P. to 25 H.P.
Prices range from \$60.00 to \$500.00.

The Best-built Motor in America

Users say So—Sales Prove It!

GUARANTEED to develop more actual horsepower at its rated revolutions than any other engine of similar size, bore and stroke operated under identically similar conditions.

This guarantee is backed by a company of established reputation both as to the quality of its product and its financial responsibility, owning and operating the largest, most complete and best equipped engine plant in the world.

1500 Sales representatives scattered in every country and in almost every port in the world emphasize what FERRO SERVICE means to the 40,000 owners and operators of Ferro Engines.

Send for illustrated catalog.
Let us give you the name and address of our nearest dealer.

THE FERRO MACHINE & FOUNDRY CO.

Main Office and Plant, 36 Hubbard Avenue and East 66th Street, Cleveland, Ohio, U. S. A.

Ferro Dealers in all principal cities and towns.

New York Distributor, THE GASOLENE ENGINE EQUIPMENT Co., 133 Liberty Street, New York City.

When writing to advertisers please mention MOTOR BOATING, the National Magazine of Motor Boating.

The First Marine Magazine

MoToR BoatinG will soon enter its fifth year under the present ownership. Its wonderful progress since the Spring of 1909 is not so remarkable when its policy is analyzed. It has adopted methods of growing that help the entire marine industry. Advertisements in newspapers and magazines that reach millions of people create new subscribers, new boat owners and accessory users — new customers for the manufacturers. Most publications are content to circularize a list of customers already on your books.

Broad policy rewarded

Actual figures of the amount of advertising carried by the five leading publications indicates that MoToR BoatinG's circulation pays advertisers best — and it should. The following figures show the average gains and losses in advertising during the past year.

Average Each Issue	1911	1912	Gain	Loss
MoToR BoatinG	34,072	39,146	5,074	
Motor Boat	33,704	35,643	1,939	
Power Boating	14,804	13,996		808
Yachting	12,749	11,777		972
Rudder	15,435	13,728		1,707

For convenience we have taken the average issue. In the case of Motor Boat the figures are the average of 26 issues, and the remainder of the publications 12 issues. Lines are used as a basis of measurement for sake of accuracy. See Printers' Ink method.

What is the advertising rate?

Remember — Where there is a ridiculously low rate there is a correspondingly low and ineffectual circulation. A magazine that cuts your rate may cut your competitor's even lower. Alleged low rates are a delusion and a snare, because a publisher can't give circulation without charging for it, and an honest publisher does not want to give one man an advantage over his competitor. MoToR BoatinG has only one rate, and hereby agrees to give any advertiser a page for a year free if he finds its rate schedule is being violated. Every single advertiser gets a square deal. The rate card tells him what his competitor pays for space — MoToR BoatinG's space is worth the price asked and that is why all advertisers pay the same.

Circulation

The circulation of MoToR BoatinG is guaranteed to average in excess of 25,000 copies each month or a rebate pro rata. Circulation books open to all advertisers. This, we believe, is the largest paid circulation in the marine field.

MoToR BoatinG

381 Fourth Avenue

New York, N. Y.

J. S. Hildreth, Advertising Manager

SOMETHING NEW — THE



OIL TRANSFORMER

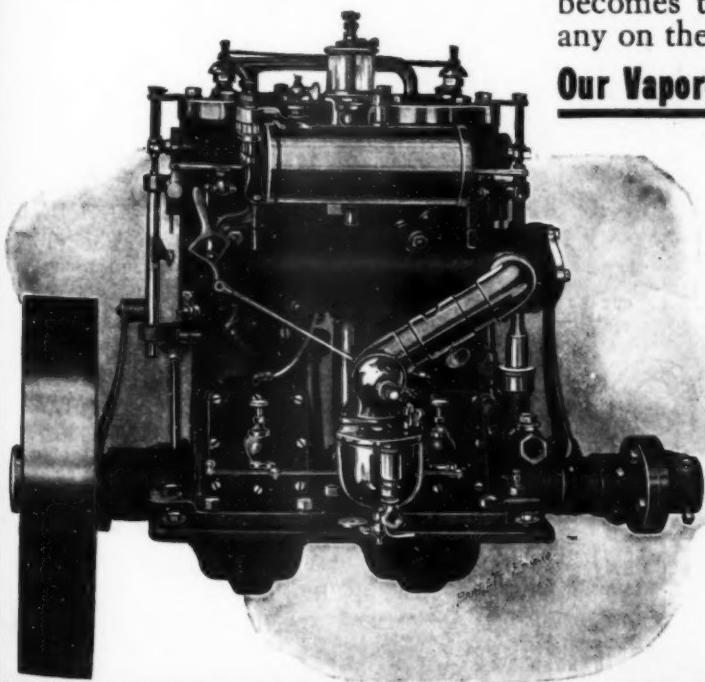
Our 1913 Model Proved "THE HIT" of New York and Boston Shows

THE ADVANCED TWO-CYCLE MOTOR

The thousands of boatmen and fisherman who have always favored the famous Bridgeport Motor for its unquestioned power and reliability will be pleased to know that we can now supply a device of our make which enables the Bridgeport to operate successfully on

Kerosene, Benzine, Distillate, Alcohol, Etc.

The Bridgeport Oil Transformer is the result of the most extended study and experiment of its kind produced so far. It insures perfect vaporization and combustion of these fuels without smoke, carbon or odor and gives the same power, reliability, flexible control and smooth operation as gasoline. With this equipment the Bridgeport becomes the most economical motor to own of any on the market.



Our Vapor-Rectifier has made the Bridgeport a real **non-backfiring** motor. The design is the highest type of two-cycle practice with Make and Break or Jump Spark Ignition. Thirteen models for nineteen-thirteen make it possible for you to have Bridgeport service and economy, no matter what size boat you own.

If a Better Motor Could Be Produced
It Would Still Bear Our Name Plate

The high development of the Bridgeport guarantees you an economical outfit and a satisfactory investment in every particular. Send for free catalog "B."

The Bridgeport Motor Company, Inc.
BRIDGEPORT, CONN. U.S.A.

MOTOR
BOATING
157

THE JOHNSON MARINE REVERSE GEAR

Three
Sizes
from
1
to
40
H. P.



SPECIFY,

CUT 2-8 ACTUAL SIZE
16 H. P. GEAR

JOHNSON AND QUALITY

AS A PART OF YOUR 1913 EQUIPMENT

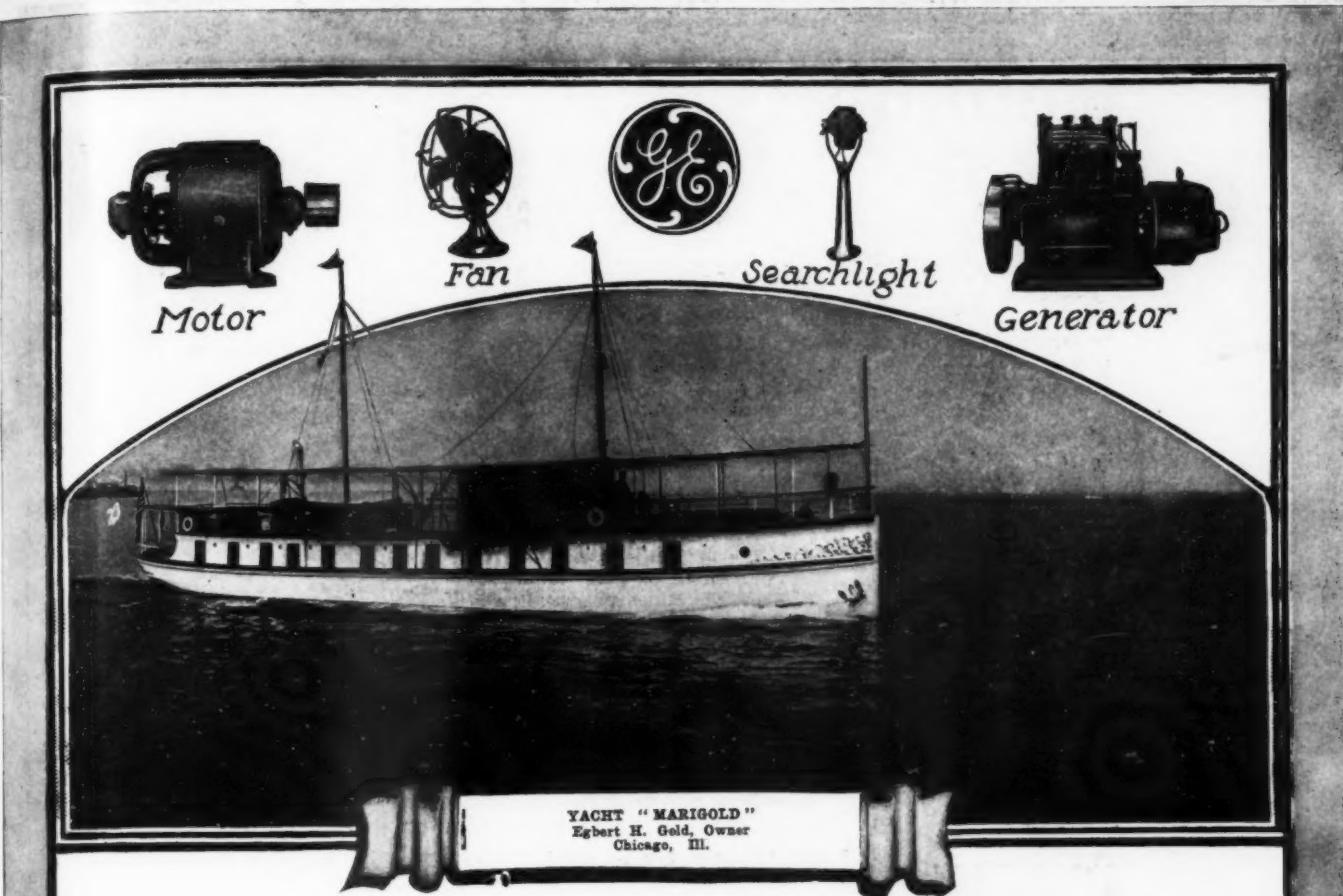
THE GEAR YOU WILL EVENTUALLY USE

PLACE YOUR ORDERS NOW FOR LATER DELIVERY

AGENTS DESIRED IN EVERY TERRITORY

THE CARLYLE JOHNSON MACHINE CO. MANCHESTER, CONN.

When writing to advertisers please mention MOTOR BOATING, the National Magazine of Motor Boating.



The "Marigold" is equipped with one 5 horse power G-E Gasolene Electric Generator, one CQ motor for pumping service, a G-E 9-in. marine searchlight, and G-E fans, lamps, etc.

Electric Service on Board Ship

Brilliant illumination, electric heating and cooking devices, electric signals, searchlights and power devices produce greater comfort and safety on board ship.

Edison Mazda Lamps, in all sizes are especially adapted for lighting any part of the boat.

G-E Electric Fans and electric stateroom heaters provide comforts.

The G-E Marine Searchlight increases the scenic advantages as well as the safety at night.

Electric Cooking and Heating Devices of all kinds can be operated at a cost incomparable with the convenience and simplicity.

Power Motors for the windlass, pumps, etc., can be located conveniently and operated by the turn of a switch.

The Source of Power most economical and convenient for yachts and motor boats is the G-E Gasolene Engine Generator — a thoroughly reliable direct connected unit which operates successfully with minimum attention.

For vessels having steam, the G-E steam engine generator or turbine may be used.

Bulletin No. 4926 explains and illustrates the applications of electricity in Marine Service. Furnished on request.

General Electric Company

Atlanta, Ga.
Baltimore, Md.
Birmingham, Ala.
Boise, Idaho
Boston, Mass.
Buffalo, N. Y.
Butte, Mont.
Charleston, W. Va.
Charlotte, N. C.
Chattanooga, Tenn.

Chicago, Ill.
Cincinnati, Ohio
Cleveland, Ohio
Columbus, Ohio
Davenport, Iowa
Dayton, Ohio
Denver, Colo.
Detroit, Mich.
(Office of Agent)
Erie, Pa.

Largest Electrical Manufacturer in the World
General Offices: Schenectady, N. Y.
ADDRESS NEAREST OFFICE

Indianapolis, Ind.
Jacksonville, Fla.
Joplin, Mo.
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Knoxville, Tenn.
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Memphis, Tenn.
Milwaukee, Wis.

Minneapolis, Minn.
Nashville, Tenn.
New Haven, Conn.
New Orleans, La.
New York, N. Y.
Philadelphia, Pa.
Pittsburgh, Pa.
Portland, Ore.
Providence, R. I.
Richmond, Va.

Rochester, N. Y.
Salt Lake City, Utah
San Francisco, Cal.
St. Louis, Mo.
Seattle, Wash.
Spokane, Wash.
Springfield, Mass.
Syracuse, N. Y.
Toledo, Ohio
Youngstown, Ohio

For Texas and Oklahoma business refer to General Electric Co. of Texas—Dallas, El Paso, Houston and Oklahoma City. For Canadian business refer to Canadian General Electric Co., Ltd., Toronto, Ont.

3349 s



Reliability

IT is the 365-Days-a-Year Man who brings home the bacon. He is the one you put in the big job although you could get a fellow of the short-spurt kind for less money. A smile always goes with his pay check, because in the 365-Days-a-Year Man you have something you can bank on—he is reliable.

And it is the same with marine engines. The engine which will deliver its rated horsepower—steadily, inconspicuously—every day in the year, is the engine to place in your boat because it will pay you best. Ultimate economy is the only *true* economy.

Study the boats in which steady-running reliability is absolutely essential—ferry boats, car ferries, government boats and you will find that "Buffalo" engines are usually selected to

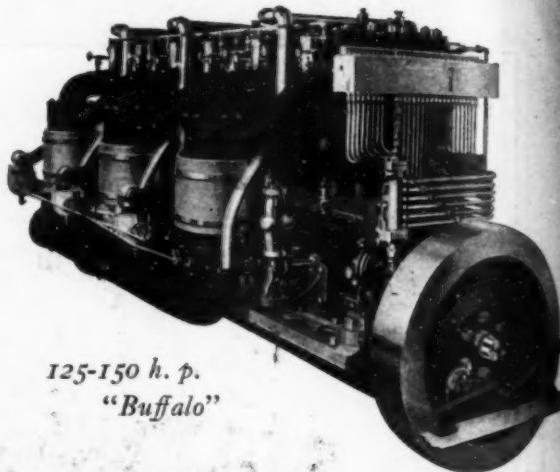
power them. Then remember that the same quality goes into all "Buffalo" engines, no matter what the size or type.

"Buffalos" are built in 19 models—3 to 150 h.p.—Heavy Duty, High Speed and Medium Speed, for work boats, speed boats, launches and cruisers. They operate on either gasolene or kerosene.

The 1913 "Buffalo Book" is out. Return this coupon properly filled in and we will send it.

"The Engine of Constant Service"

BUFFALO GASOLENE MOTOR CO.
1271-1283 NIAGARA STREET - - - BUFFALO, N. Y.

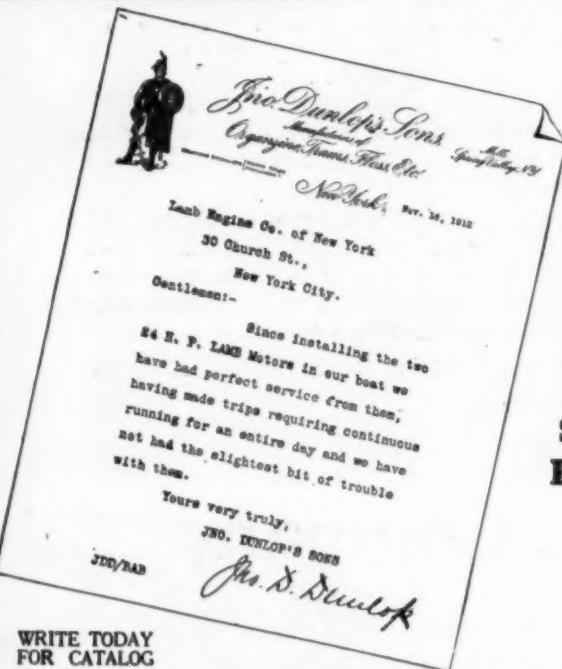


125-150 h. p.

"Buffalo"

Date _____	
Buffalo Gasolene Motor Co.: Send me information concerning the best power plant for a boat of the type before which I have marked "X" and of the size here stated:	
Auto Boat Auxiliary Cruiser Fish Tug Open Launch	Racing Boat Runabout Str.Paddle Wheel Tug Boat Work Boat
Length _____	Beam _____
Draft _____	Speed desired _____
Name _____	
Address _____	

Perfect Service



WRITE TODAY
FOR CATALOG

10 Models. High Speed, Medium Duty, and Heavy Duty Types. All Four Cycle. Two, Three, Four and Six Cylinders, 12 to 60-70 Horse-Power.

Manufactured by the Lamb Boat and Engine Co., Clinton, Iowa

Lamb Engine Company of New York
30 Church St. Eastern and Foreign Distributors New York City



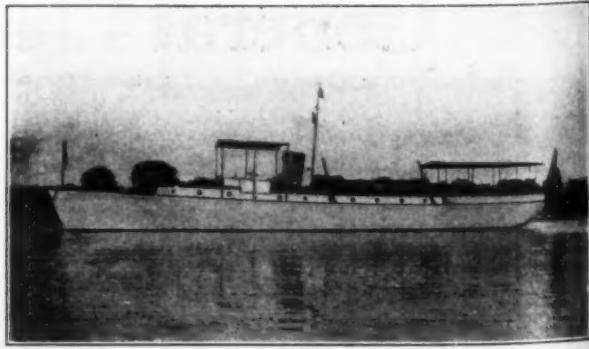
Marine Motors

The **Perfect Service** of Lamb Motors has made them famous the world over. For genuine hard work, without delay, trouble or complaint, there is no more satisfactory motor made. Put a Lamb in your boat and share in the Perfect Service which is enjoyed by all Lamb owners.

Power

Quietness

Reliability



Exhibits at the NEW York MOTOR BOAT Show



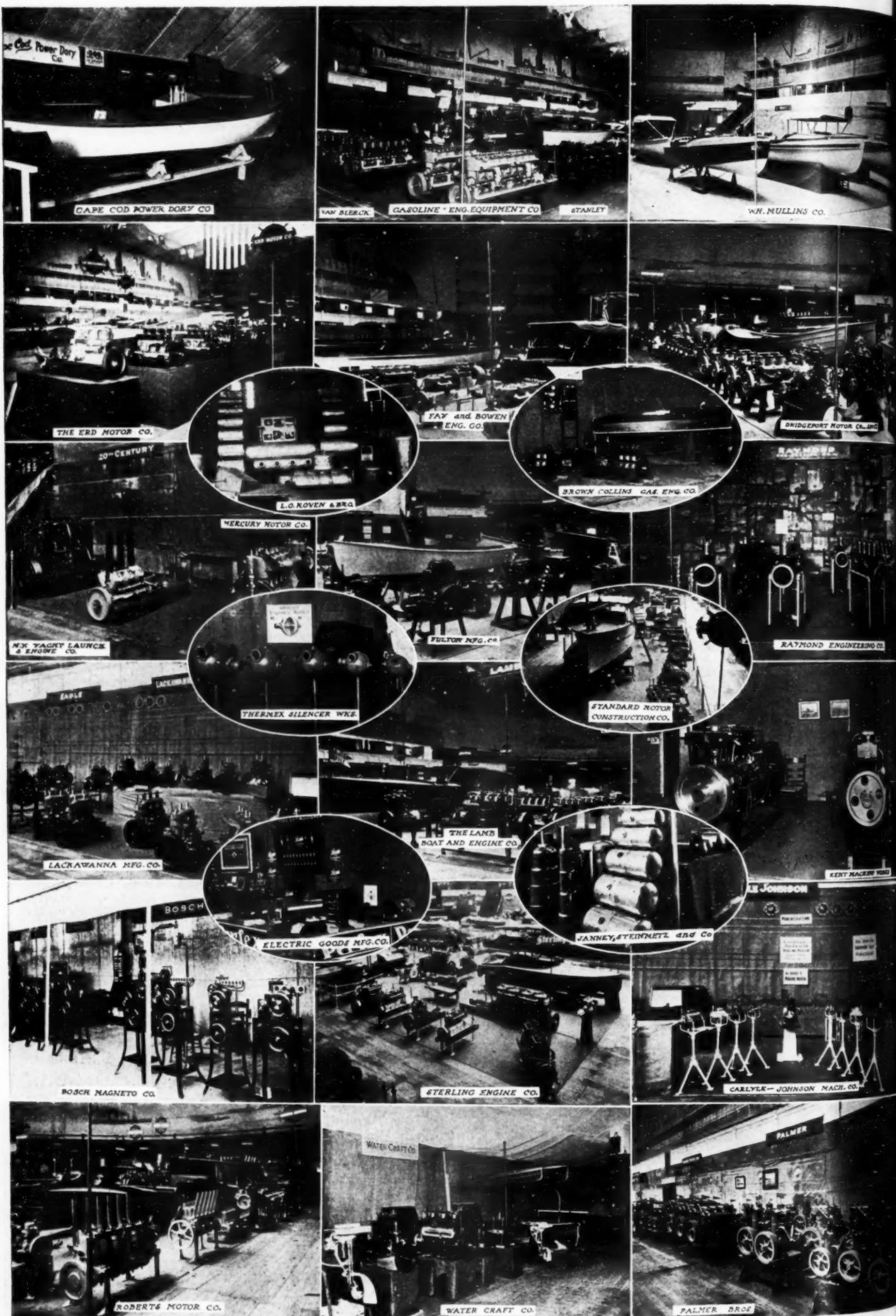
THIS Supplement Contains a Photographic Review of the Exhibits of the Manufacturers of Boats, Engines and Accessories at the New York Motor Boat Show, held in Madison Square Garden, February 15-22. Descriptions of the Individual Exhibits Appeared in the February Issue of MoToR BoatinG and a Review of the Exhibition as a Whole Will Be Found in This Number.

MoToR
BoatinG March, 1913.
Supplement to



Exhibits at the New York Show.

MARCH, 1913



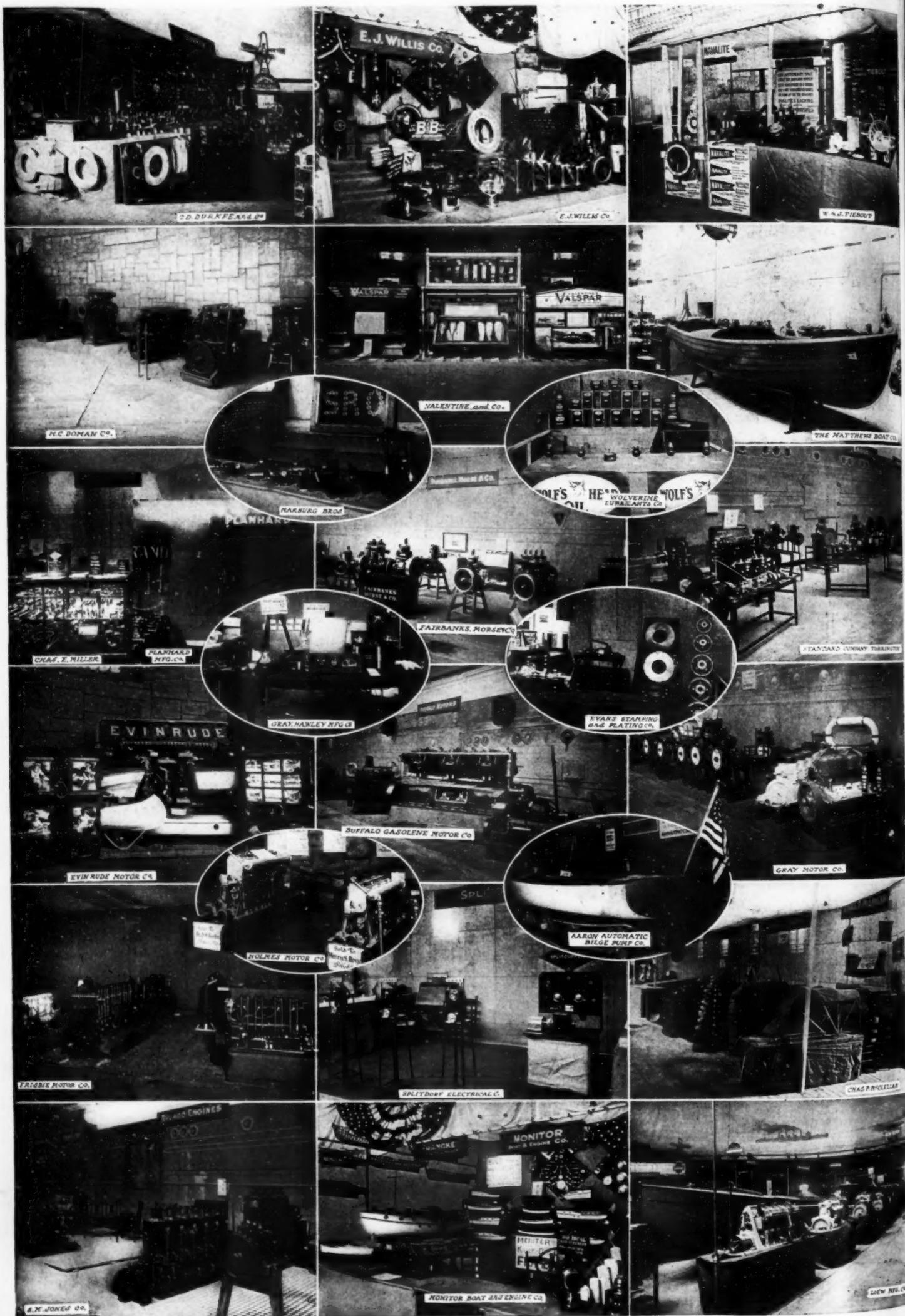
MARCH, 1913.

Exhibits at the New York Show.

3



Supplement to **MoToR BoatinG** March, 1913.

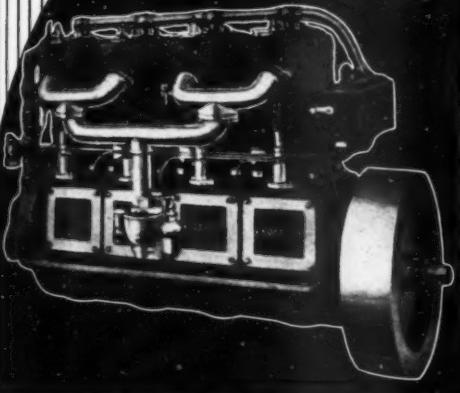


1911.

Anderson

ENGINES

Always Ready



For reliability, speed and continuous performance, the **Anderson** Engine is not equaled by any other. Every owner of an **Anderson** will testify to this.

2½ H. P. Single to 150 H. P. "Six"

No wants too small, no requirements too big for the **Anderson** Engine. Tell us your needs.

ANDERSON ENGINE CO.
136 South Dearborn St., Chicago, Ill.
New York Office: 215 E. Hudson Terminal Bldg.
San Francisco Office: 741 Monadnock Bldg.

MOTOR BOATING



50 x 9' RIVER BOAT BUILT FOR C. E. RINGLING (RINGLING CIRCUS).

SERVICE COUNTS

A prospective buyer wrote Mr. Chas. Willis Ward, for two years owner of a Matthews 75 ft. cruiser, as to the builder of his boat and whether he could recommend the same builder again. The following is an extract from his reply:

"The Matthews Boat Company can build the best boat in the United States for wear and tear."

This is the consensus of opinion of owners of Matthews Craft and accounts for their yards now having all the business they can take care of for this season's delivery. Late Summer and Fall deliveries are now being booked.

Catalogue and plans for those interested.

The Matthews Boat Company, CRUISING YACHTS OF QUALITY Port Clinton, Ohio

MATTHEWS
CRAFT

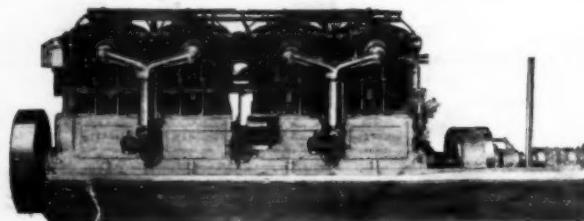


Sterling

THE ENGINE OF REFINEMENT
*For the
 finest boats that float*

HOWARD E. COFFIN, the noted engineer of the Hudson Motor Car Company, pays the highest possible tribute to Sterling *Reliability* and *Power* by selecting a 100 horsepower Heavy Duty Engine for his own yacht.

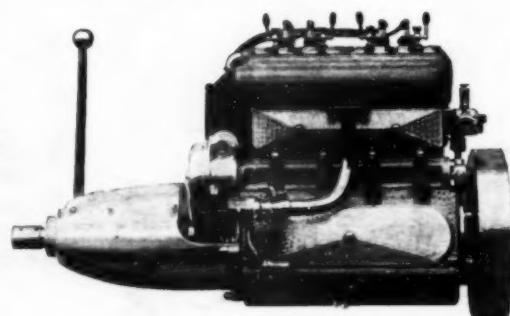
WHILE cruising in Southern waters he writes that his engine is giving perfect service.



100 HORSEPOWER HEAVY DUTY

HERETOFORE there never has been a small engine good enough for high-class yacht tenders. To meet the demand for a motor of absolutely the best quality for this and similar kinds of work, the Sterling Engineers have designed the "Sterling Kid," a 4-cylinder 10-horsepower machine, of the enclosed type. It is the most perfect engine of its size ever built. Compact, light, clean — the greatest care is used in every phase of its construction. Not a fragile plaything, but a mighty little motor that will stand up under the hardest use. Its graceful lines and finished appearance are very pleasing to the eye. Its cleanliness, quietness, simplicity and great flexibility win instant favor.

THE "STERLING KID"



OUR NEW CATALOG ON REQUEST

AMOTOR a woman or young person would delight in operating. No grease, dirt, noise or vibration. For yacht tenders 15 feet in length upwards, small auxiliary power in sailing cruisers and small fishing boats, a more suitable power plant could not be found. It makes possible an absolutely clean, noiseless and powerful yacht tender and will successfully convey the personality of the big cruiser from whose davits it swings. Many original features in its design and construction. Manganese bronze base — Special oil tight clutch and reverse gear — Single plates expose valve and base — High tension magneto — Stroke 4½ inches — Bore 2¾ inches — Weight 215 pounds. Send for descriptive literature and price.

STERLING ENGINE CO.

1254 Niagara St.
BUFFALO, U.S.A.

NEW YORK.....BRUNS, KIMBALL COMPANY, 132 LIBERTY STREET
 BOSTON.....A. P. HOMER, 156 STATE STREET
 PHILADELPHIA.....J. J. FARLEY, BOURSE BUILDING
 BALTIMORE.....UNGER & MAHON, 119-121 E. YORK STREET
 MONTREAL, QUE.....PYKE-PUTNAM MOTOR CO., 371 ST. JAMES ST.

CHICAGO.....WARREN SALES COMPANY, 1413 MICHIGAN AVENUE
 SEATTLE, WASH.....RACINE BOAT & AUTO COMPANY
 VANCOUVER, B. C.....HOFFAR MOTOR BOAT COMPANY
 TACOMA, WASH.....NICKERSON, McFARLAND MACHINERY CO.
 HOUSTON, TEXAS.....BARDEN ELECTRIC & MACHINERY CO.

